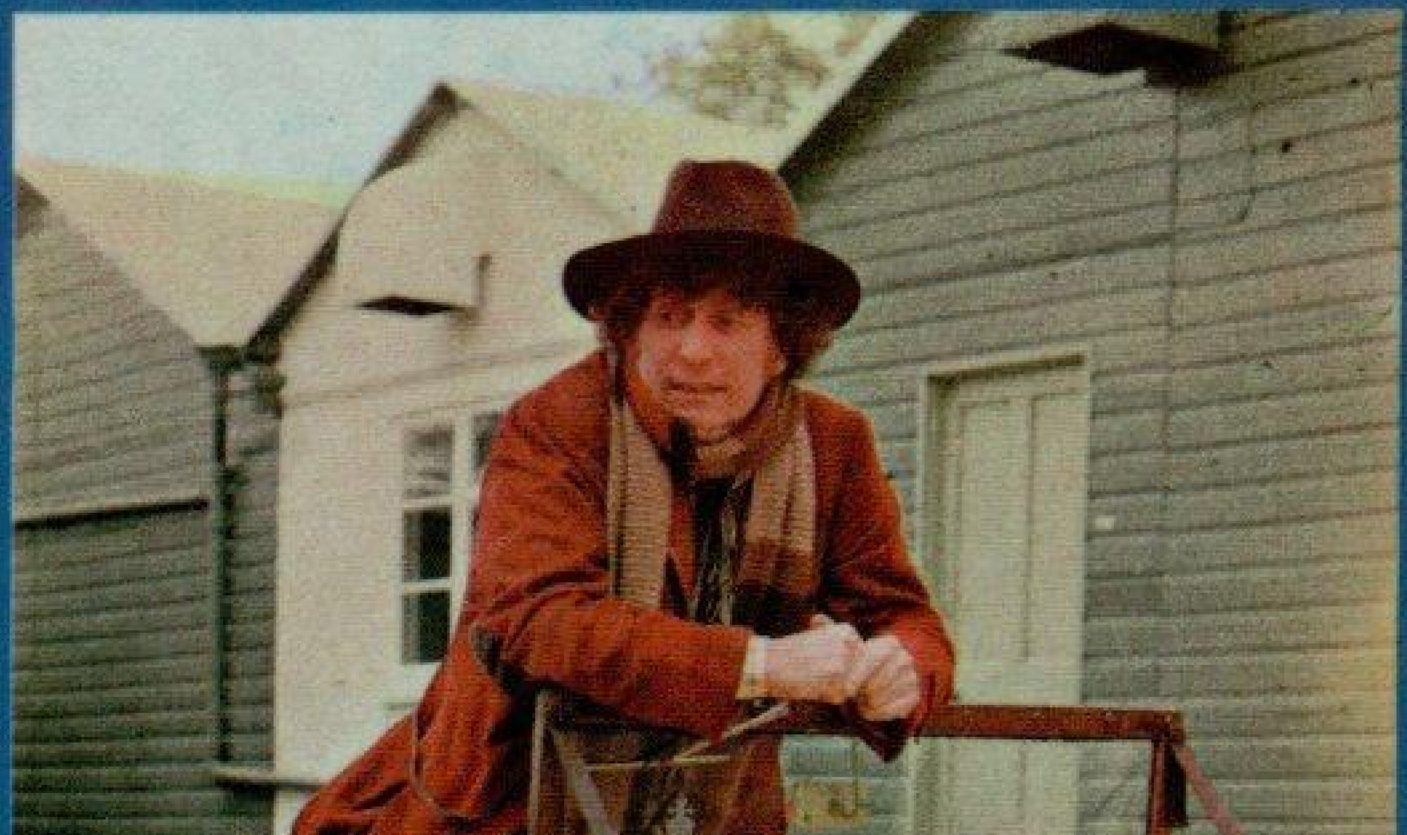
THE DR WHO annual 1976

Starring
TOM BAKER
as DR WHO

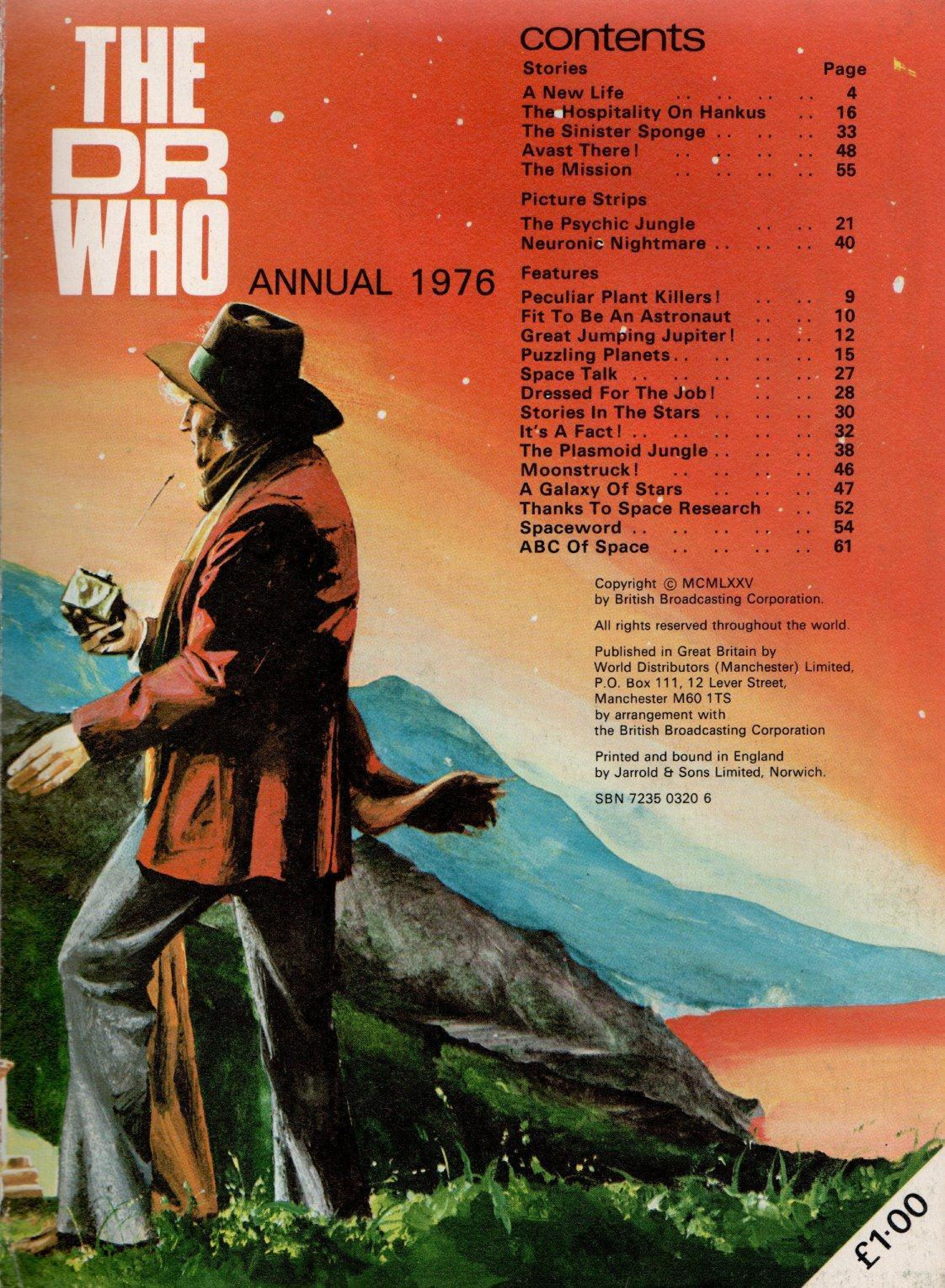
Authorised edition
as seen on
BBC tv

SBN 7235 0320 6



THE DR WHO

ANNUAL 1976



THE DR WHO ANNUAL 1976

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A NEW LIFE

"But, Doctor," Sarah protested, "we can't possibly just disappear into thin air. You know how annoyed the Brigadier gets when he's expecting you to be on hand and then you go and do your vanishing trick."

"Well, Sarah," the Doctor sighed, barely hiding a smile, "if it will make you any happier, I'll leave him a little note, explaining everything. . . ."

When the Brigadier arrived at the lab there wasn't any evidence that the Doctor or his strange craft had ever been there, except for the note. . . .

The Brigadier picked it up gingerly, as though half expecting it to detonate in his hand. "Gone on holiday," he read. "Gone on holiday Lieutenant Sullivan! Do you know anything about this?" He turned to Harry, his face red with anger.

Harry gulped. "Er no, no. Nothing at all, Brigadier Lethbridge-Stewart. I've only just returned from a spot of leave myself."

Meanwhile, Sarah and the Doctor had arrived at their holiday spot, chosen specially by the Doctor because of its idyllic setting and friendly people.

"It's very quiet," Sarah ventured, as she surveyed the green rolling landscape.

"Aaah," the Doctor sighed, "that's the essence of a holiday. Away from it all. I'll bet this place hasn't seen a single change since my last visit."

"Last visit? When was that, Doctor?" Sarah asked curiously.

"Oh, only one hundred and two years ago, my dear," Doctor Who brushed the question aside. Time for him held no mystery; one hundred and two years on earth could feel like one hundred and two minutes to other beings on another planet.

"Come along, my dear. If my memory serves me correctly, and it usually does, over that small rise we should find a pleasant place to stay and an old friend of mine, who'll be very surprised to see me." The Doctor hurried off ahead of Sarah, obviously eager to begin his holiday properly.

Sarah looked at his retreating back dubiously. "Huh! He'll be surprised! I'll be *amazed* if he's still there and able to remember the Doctor." Then Sarah addressed herself firmly. "Now, now, Sarah my girl, you should have learnt by now that where the Doctor's concerned anything is possible!" And so she followed.

Just as the Doctor had said, there was a house, a gleaming white dome-shaped structure. As they walked towards it a panel slid back, allowing them inside.

Sarah was most impressed. The house was beautiful, ultra modern by earth standards and, according to Doctor Who, it wasn't any different than it had been on his last visit.

"They must be a very intelligent race, Doctor, to have had such a standard of life over a hundred years ago. Why, we were still living by gaslight in those days!" Sarah said, as she ran her hand along the shiny surfaces and looked around her new surroundings.

"Yes, indeed," the Doctor smiled at his companion's obvious delight. "The Lexopterans are an intelligent people and more important, for people with such a high standard of technological knowledge, they are peace-loving too, totally against any sort of violence."

"M'mmm, I suppose that would go some way to explaining the peace around here. But shouldn't your friend be around somewhere?" Sarah asked, looking a little puzzled.

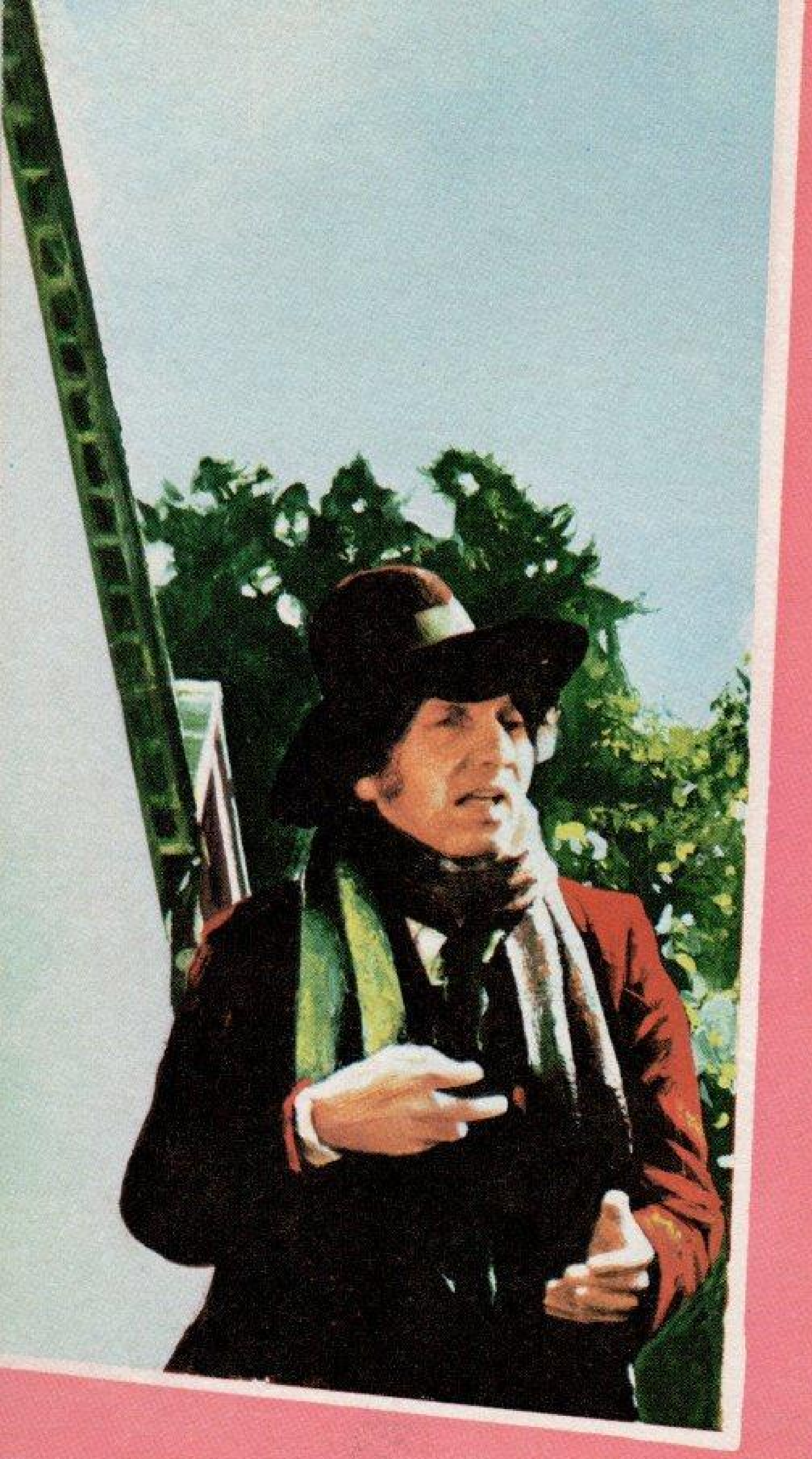
"Yes," the Doctor replied, frowning slightly. "I've been wondering about that myself. It does seem a little odd. Perhaps he's outside somewhere. Come on, let's take a look around."

An hour later, both the Doctor and Sarah had despaired of ever finding anyone. The whole place seemed entirely deserted.

"Phew!" Sarah gasped, flopping on the ground. "It's no good, you know, Doctor, we've looked almost everywhere. There's not a single sign of a living person anywhere."

The Doctor rubbed his chin thoughtfully. "No, I know you're right. But it just doesn't make any sense! A whole race of people couldn't just have vanished into thin air. . . ."

"What I don't understand,



Doctor, is why the place looks so lived in. There's no dust, no left-over food, everything is so tidy . . . just as though they'd all gone away on holiday and tidied up for their return." Sarah looked very puzzled.

"Well, Sarah, first of all, as far as the dust goes, there isn't any on this planet. It's a housewife's dream, nothing ever gets dusty here. But as to the other things, I'd noticed those too, and you're right, it's just as though everywhere had been prepared for something. . . ."

"Yes, and there's another thing, Doctor. It *may* sound silly, but all the time we've been walking round I've had the feeling that we're being watched . . . oh, not in any sinister way. Oh, I don't know! It's almost as though someone or something is trying to communicate with us but cannot." Sarah looked at the Doctor half expecting him to laugh at what Harry would put down as that dubious quality known as female intuition. But the Doctor was on his feet again and striding off ahead.

"Come on, Sarah," he called. "Don't dawdle, I've just had an idea."

"But where are we, Doctor? What is this building?" Sarah, more than a little out-of-breath, gasped as the Doctor plunged down yet another endless corridor in the large building which they'd just entered.

At last he stopped outside one of the many doors and waited for it to open and allow him in.

The room they entered was enormous. At one end, towering above all the other seats, there was a dais and chair, towards which Doctor Who was heading.

He flicked a switch under the seat and almost immediately a large panel at the opposite end of the room slid open to reveal . . . nothing! Doctor Who's shoulders slumped and he sighed.

"That was my last hope. I suddenly remembered being shown this secret room off the Senate chamber on my last visit. Miranon, that's my friend, said it has been built in case of attack. As you could see before I opened it, it is completely invisible and, according to Miranon, proof against explosions, that sort of thing. . . . Sarah! Whatever are you doing?"

The Doctor turned just in time to see his companion disappearing down a flight of stairs which had appeared behind the Senate chair. They were obviously connected in some way to the hidden chamber.

"Doctor! Doctor!" The sound of Sarah's screams brought the Doctor running at top speed. . . .

"What is it, Sarah? What is . . ." The Doctor stopped at the open doorway, as though transfixed, his eyes glued to the figure slumped over the computer panel.

"Dead?" he asked, at last.

Sarah nodded. "Did you know him, Doctor?"

Suddenly, the Doctor seemed to shake himself back from his thoughts. "Yes, I knew him. It's Miranon. But I don't understand it. Miranon's death, the complete desertion of the planet, I don't understand any of it and yet. . . .

This is the first place that we've seen any sign of either a struggle, or any sign of what was once life. The key, the key to it all must be here somewhere."

"Perhaps," Sarah ventured after several minutes silence, "it would be better to go back to the Tardis. I'll make something to eat and we can sit and think about it all objectively. There are too many things here crowding in on our thoughts for us to be able to think clearly."

Sarah and the Doctor walked back towards the Tardis in silence . . . until Sarah spotted something which made her bend down and take another look.

"You know, Doctor," she remarked, "this planet really does have the most unusual plant life. Some of it is very, very beautiful."

The Doctor stared disinterestedly down at the plant which Sarah was carefully examining, then slowly his eyes began to widen slightly in interest.

"Yes, you're right, Sarah. These plants are most unusual, they're of a type I've never seen before. They don't even resemble any other strain I've ever seen on the planet. Perhaps when I've a little more time, or when we've solved the mystery, I'll devote a little time to studying them."

After having something to eat, Sarah and the Doctor sat back to think about the strange circumstances on the planet. But the more they thought, the more it seemed like a mystery without a solution.

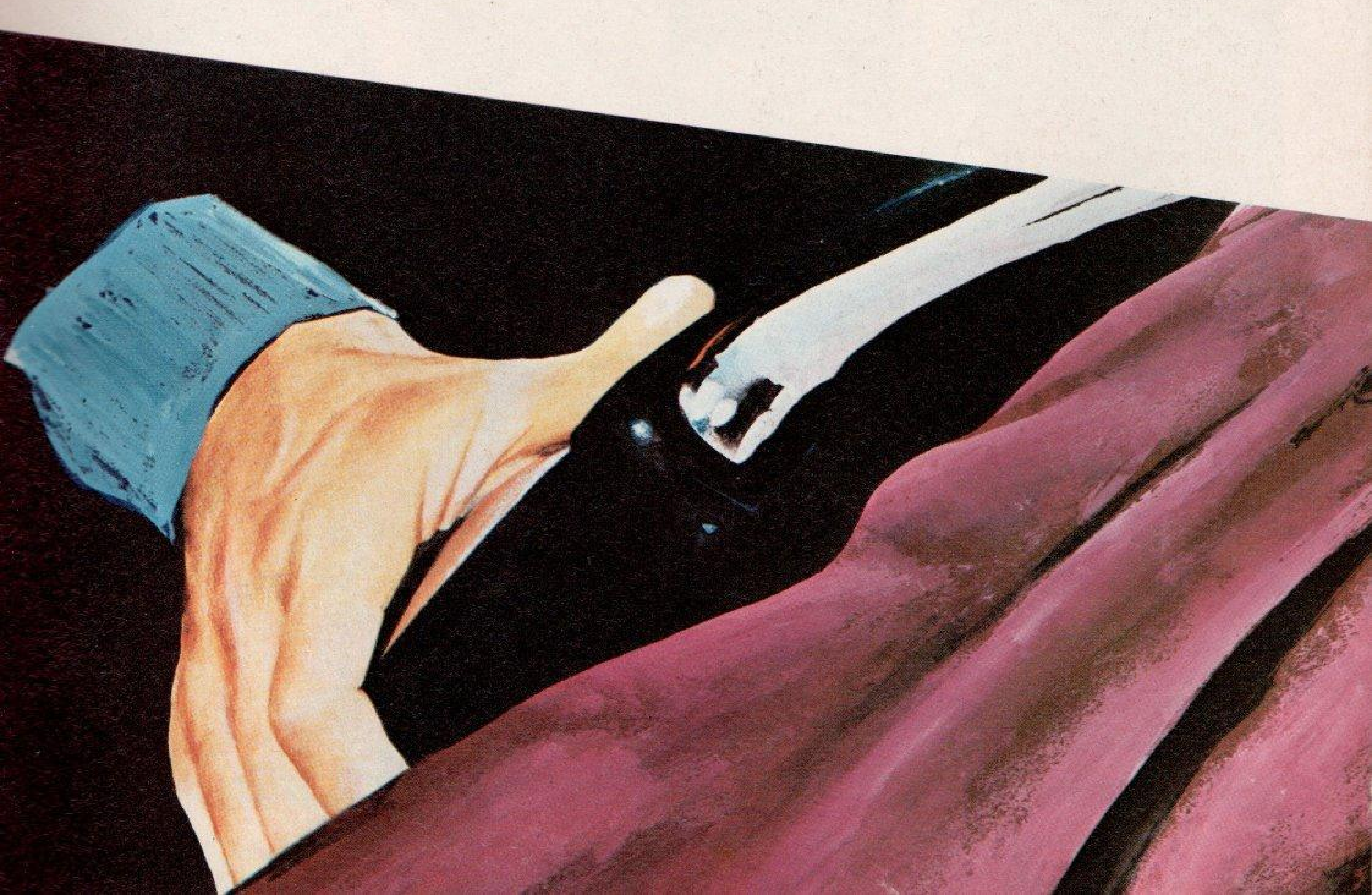
"I think I'll just wander back to the Senate House," the Doctor said, at last, getting to his feet. "I'm sure that if there's a key to the mystery, we'll find it there. Coming?"

After an hour's fruitless searching in the Senate's many rooms, Sarah and the Doctor found themselves down in the computer room again. Gently, they moved Miranon to the next room, and then the Doctor sat at the computer panel in front of him.

"It must be here," he muttered. "It must be here somewhere."

As he sat and pondered over the problem, Sarah had been working her way along the bookshelves which lined one side of the room. Suddenly, her eye fell on a book which by its title promised to show the many species of plant life to be found on Lexoptera. Eagerly, she reached up to the shelf and took the book down. As she did so, something fluttered out from between its pages.

"What do you make of this, Doctor?" she asked. "It's complete Double Dutch to me. Looks like some sort of equation, but a sort of Biological equation. I've never seen anything like it before. . . ."



The Doctor stared at it for several minutes, then his face broke into a smile. "This is it, Sarah! This is the key! You've found the answer to the mystery."

Sarah stared at him with a certain amount of disbelief. "I don't understand. What has that slip of paper with a peculiar equation on it got to do with the disappearance of the whole race of Lexopterans?"

"I'll show you," the Doctor replied triumphantly, switching on the machine in front of him and pressing a large number of buttons.

The whole operation took some five minutes, and when he had finished the Doctor looked at his young companion. "Well, this is our last hope. Come on, Sarah, let's go outside and see if it has worked."

Sarah could hardly believe her eyes. Suddenly, where there'd been only emptiness and silence, there was people . . . people laughing and talking, and walking and looking straight at them. One or two ran forward to shake the Doctor's hand, obviously remembering him from his previous visit.

Sarah still looked more than a little puzzled.

Finally the Doctor took pity on her. "Let me explain, my dear. The Lexopterans are a very remarkable race, their technology has raced ahead at an even greater rate than I would have dreamt possible. They have perfected a technique whereby they can change themselves into plant life. Now, that may not seem very worthwhile on the surface, but if you think back to what I told you in the beginning, you'll recall that I said the Lexopterans are a peace-loving people, they abhor any sort of violence."

At last Sarah began to see. "Oh, so when threatened with an attack, they did their changing act to avoid trouble, but how does that explain about Miranon?"

"Miranon had to be the only link in the chain to remain in his normal form. Someone was needed to programme the computer. This he did but, unfortunately, he was discovered and killed. . . ."

"Dooming the people of Lexoptera to a life of vegetation," Sarah interrupted. "It was very lucky that we came along wasn't it, Doctor?"

The Doctor nodded, smiling. "Yes, I think you're right," he said. "In fact, I think we deserve a holiday!"

Peculiar Plant Killers!

Whenever he visits other planets Dr. Who is always on his guard against any strange forces of nature which, though they may appear innocent enough on the surface, could maim or kill with their tentacles, leaves or teeth.

Here on earth there are also a number of plants which are not quite all they seem, and which are out to kill any unwary insect which they need to survive.

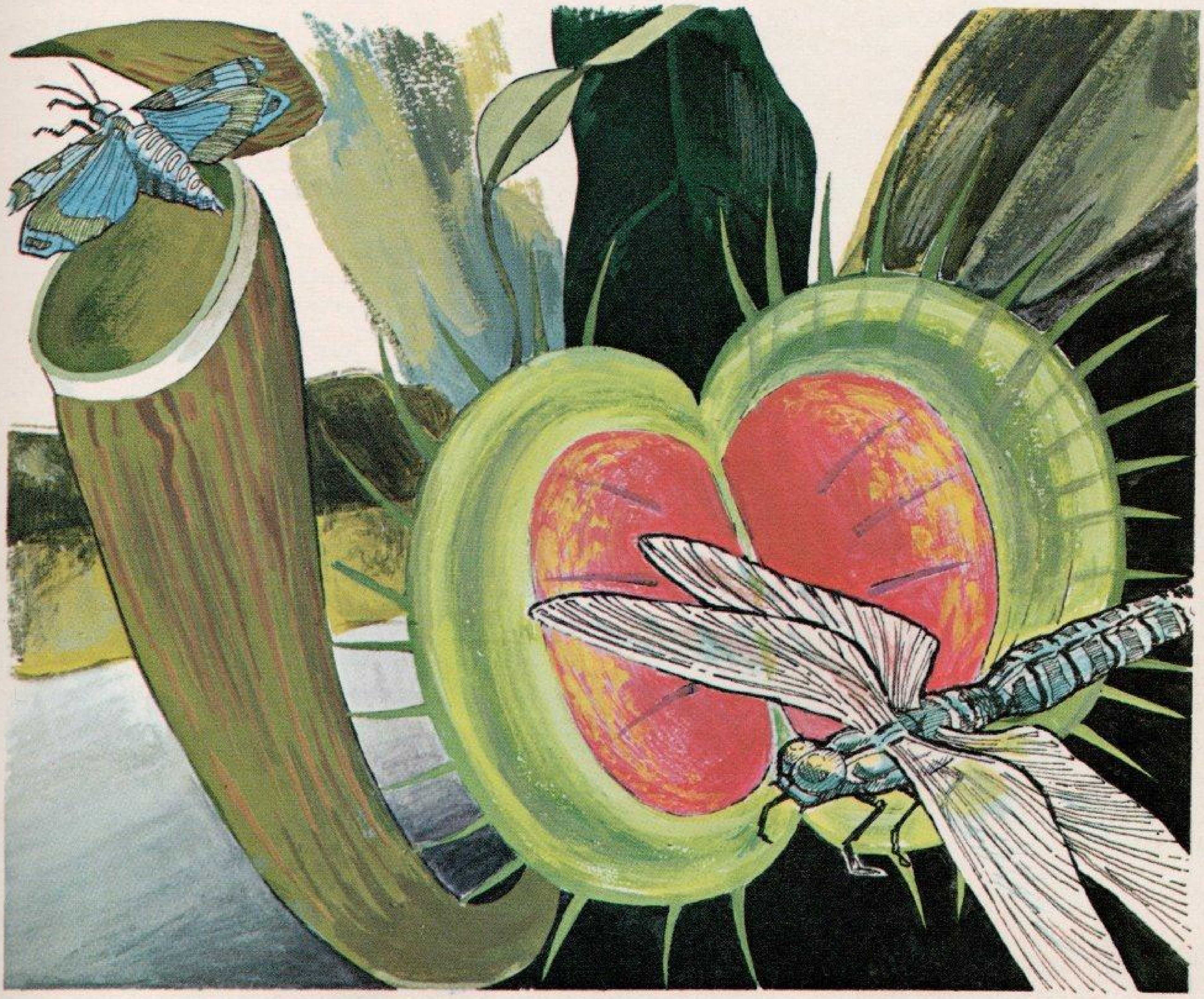
VENUS'S FLY TRAP

One of these, bearing the same name as one of the planets, is Venus's Fly Trap, which grows wild in North Carolina. Although the pretty white flowers are harmless enough, the leaves have sharp spikes on the outer edge and once an insect lands on one of these leaves the leaves close up, tightly imprisoning the insect. Try as it will the insect cannot break free, and it stays trapped like this for some fourteen days until the plant, having refurbished itself, is ready to trap its next victim. Fortunately—for the insects—when the leaf has reacted in this way several times it withers and dies!

Two other plants which trap, decompose and digest insects in much the same way are the Sundew and the Pitcher Plant. The Sundew gets its rather pretty name from the fact that the glands of the insect-trapping leaves glitter like dewdrops in the sunshine. The Pitcher Plant is also known as the Sidesaddle flower in some regions in the States. It has large purple-veined leaves and a single yellow or purple flower. The pitcher plant actually drowns its insect prey first by sliding the insect down its slippery urn-shaped leaf, which is full of rainwater!

The tube-like Sarracencia and the Bladderwort are two more plants which trap and kill insects.

Just imagine if scientists produced seeds which would develop these plant killers until their leaves were big enough to seize and trap humans! Quite a terrifying thought, isn't it?



'FIT TO BE AN ASTRONAUT'

If wanting to travel in a spacecraft was the only qualification necessary for becoming an astronaut there would never be any shortage of volunteers, but you don't need me to tell you that there's a lot more to it than that.

Today's astronauts have to be as nearly perfect as possible in all sorts of respects: physically, mentally, emotionally and educationally, and there are a lot of tests to be passed before any man can say that he's perfect in all these aspects.

Are You In Shape?

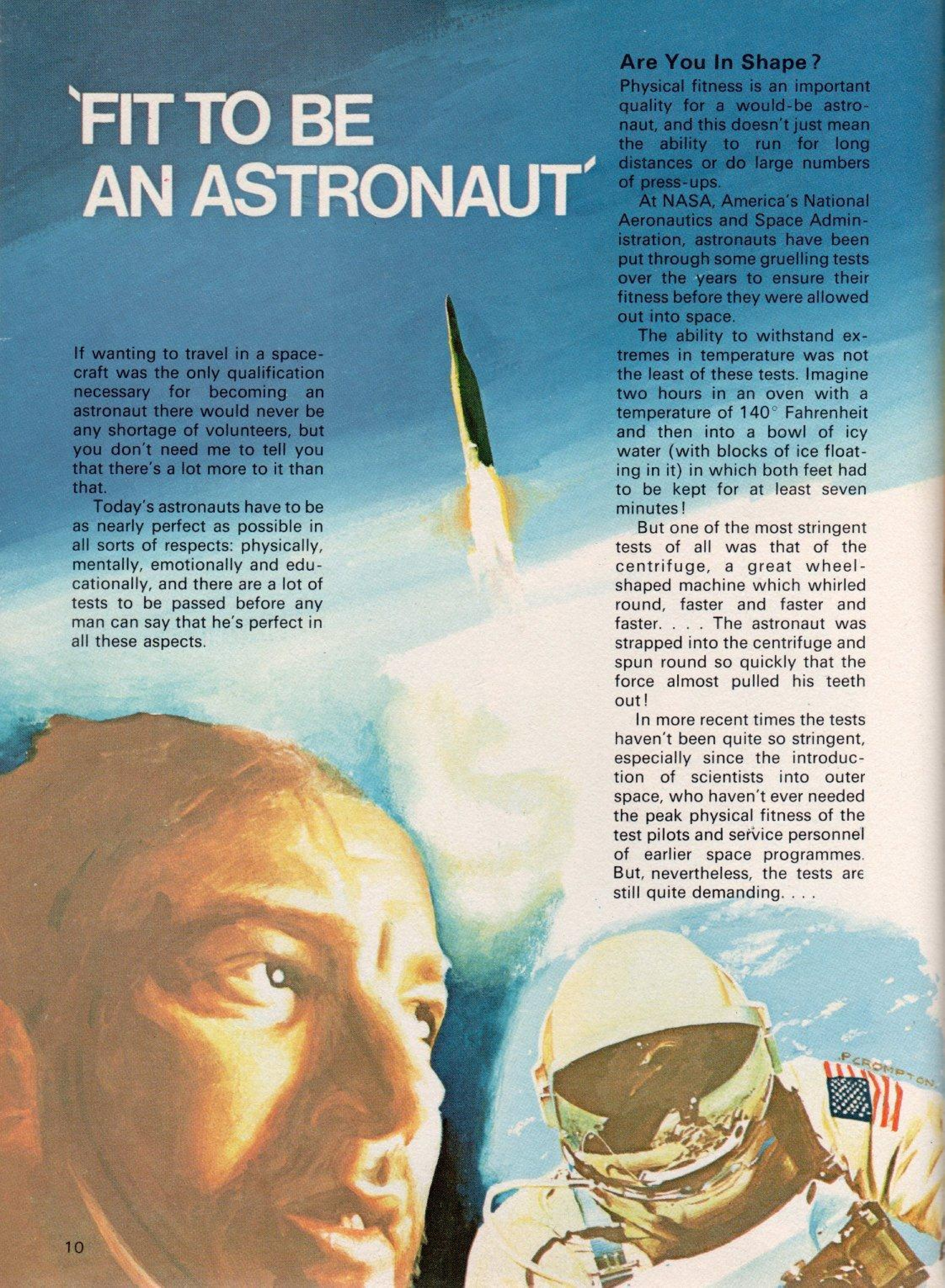
Physical fitness is an important quality for a would-be astronaut, and this doesn't just mean the ability to run for long distances or do large numbers of press-ups.

At NASA, America's National Aeronautics and Space Administration, astronauts have been put through some gruelling tests over the years to ensure their fitness before they were allowed out into space.

The ability to withstand extremes in temperature was not the least of these tests. Imagine two hours in an oven with a temperature of 140° Fahrenheit and then into a bowl of icy water (with blocks of ice floating in it) in which both feet had to be kept for at least seven minutes!

But one of the most stringent tests of all was that of the centrifuge, a great wheel-shaped machine which whirled round, faster and faster and faster. . . . The astronaut was strapped into the centrifuge and spun round so quickly that the force almost pulled his teeth out!

In more recent times the tests haven't been quite so stringent, especially since the introduction of scientists into outer space, who haven't ever needed the peak physical fitness of the test pilots and service personnel of earlier space programmes. But, nevertheless, the tests are still quite demanding. . . .



When You've Passed

The earlier astronauts also had to be very experienced pilots: qualified jet pilots, graduates of a test-pilot school and with 1,500 hours of flying time. Nowadays, however, would-be astronauts are given their flying experience once they've passed all their other tests, as the authorities have decided that flying skill is of less importance than they at first thought.

Qualifications for becoming an astronaut have been gradually eased over the years and with the experience of space travel behind us, but there are some things that you just can't do without, a sense of adventure, curiosity . . . and nerves of steel!

It's All In The Mind

To be a good astronaut, your mind too has to be in good shape; it's just as, if not more important than your body. You have to be mentally able to cope with the running of a spacecraft and emotionally able to cope with any emergencies that crop up and with living in a confined space with several other people.

Apart from the numerous written tests which test mental ability, etc., would-be astronauts are often isolated in various environments for periods of time, the most common being a darkened soundproof room. They're also tested for their powers of concentration. Imagine having to add up columns of figures while sitting right next to a noisy, almost deafening machine.

GREAT JUMPING JUPITER!

There's a saying which goes 'News Travels Fast' and it's probably true, especially when you think that it only took the messages relayed from Pioneer 10, 81,000 miles above the surface of the planet Jupiter, forty-six minutes to race the 500 million miles back to earth.

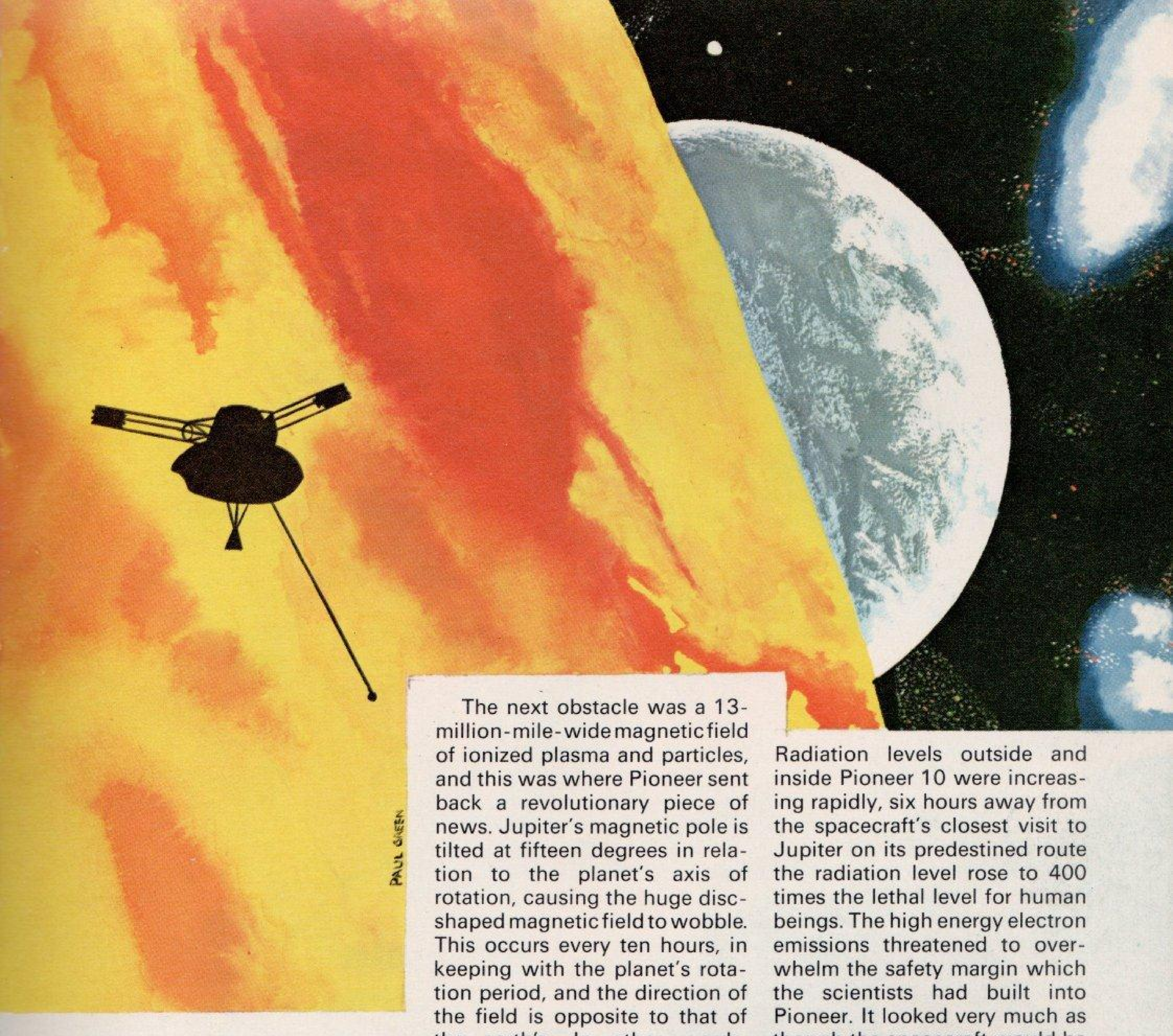
Pioneer 10 started out on its historic journey to the largest planet in our solar system in March 1972. It arrived at its destination twenty-one months later on December 3rd 1973, just a minute off schedule!

A Hazardous Journey

The saucer-shaped £20-million spacecraft, launched from Cape Canaveral, had to travel at ten million miles a day, passing the orbit of Mars in eighty-three days, to reach the first big hazard of its journey, the Asteroid Belt, a band of rocks, dust and other cosmic bits and pieces 50 million miles thick and 175 million miles wide. Back on earth, scientists waited with bated breath for six months, praying for Pioneer's safe triumph over this obstacle. Even the smallest collision, with a particle no bigger than a baked bean, but travelling at eighteen miles a second, could damage the craft beyond repair. At the end of six months the scientists breathed a sigh of relief: Pioneer could carry on and the Asteroid Belt was far less of a threat than they'd imagined.

Although Jupiter was still more than nine months away, from the cold nothingness of outer space by this time earth was little more than a brilliant silver dot at the edge of the solar glare, and even the dazzling sun had become little more than a bright, glowing disc in the darkness.

With its high gravity and low temperature the giant gas planet Jupiter has lost little of its original matter to space, retaining the gases that were present at the creation of the sun and all its planets, some 5,000 million years ago. And even from 20 million miles away, Pioneer 10 was in the grasp of Jupiter's gravity and was being pulled towards the surface of the planet at 21,000 mph.



Almost There

Steadily, as the spacecraft grew nearer to the planet, radiation increased. From seven million miles away Jupiter was clearly a giant orange and blue striped ball floating in the eerie darkness. Ahead lay the greatest dangers of all, here the mission was to succeed or fail.

The first obstacle for Pioneer 10 sounded insurmountable. A million-mile-an-hour solar wind which bounces off the planet's magnetosphere. The scientists call it a 'bow' shock wave. The spacecraft survived it to soldier on.

The next obstacle was a 13-million-mile-wide magnetic field of ionized plasma and particles, and this was where Pioneer sent back a revolutionary piece of news. Jupiter's magnetic pole is tilted at fifteen degrees in relation to the planet's axis of rotation, causing the huge disc-shaped magnetic field to wobble. This occurs every ten hours, in keeping with the planet's rotation period, and the direction of the field is opposite to that of the earth's. In other words, compasses on Jupiter would point south.

Less than a million miles away from Jupiter, Pioneer's greatest danger lay ahead.

The Closest Approach and Danger!

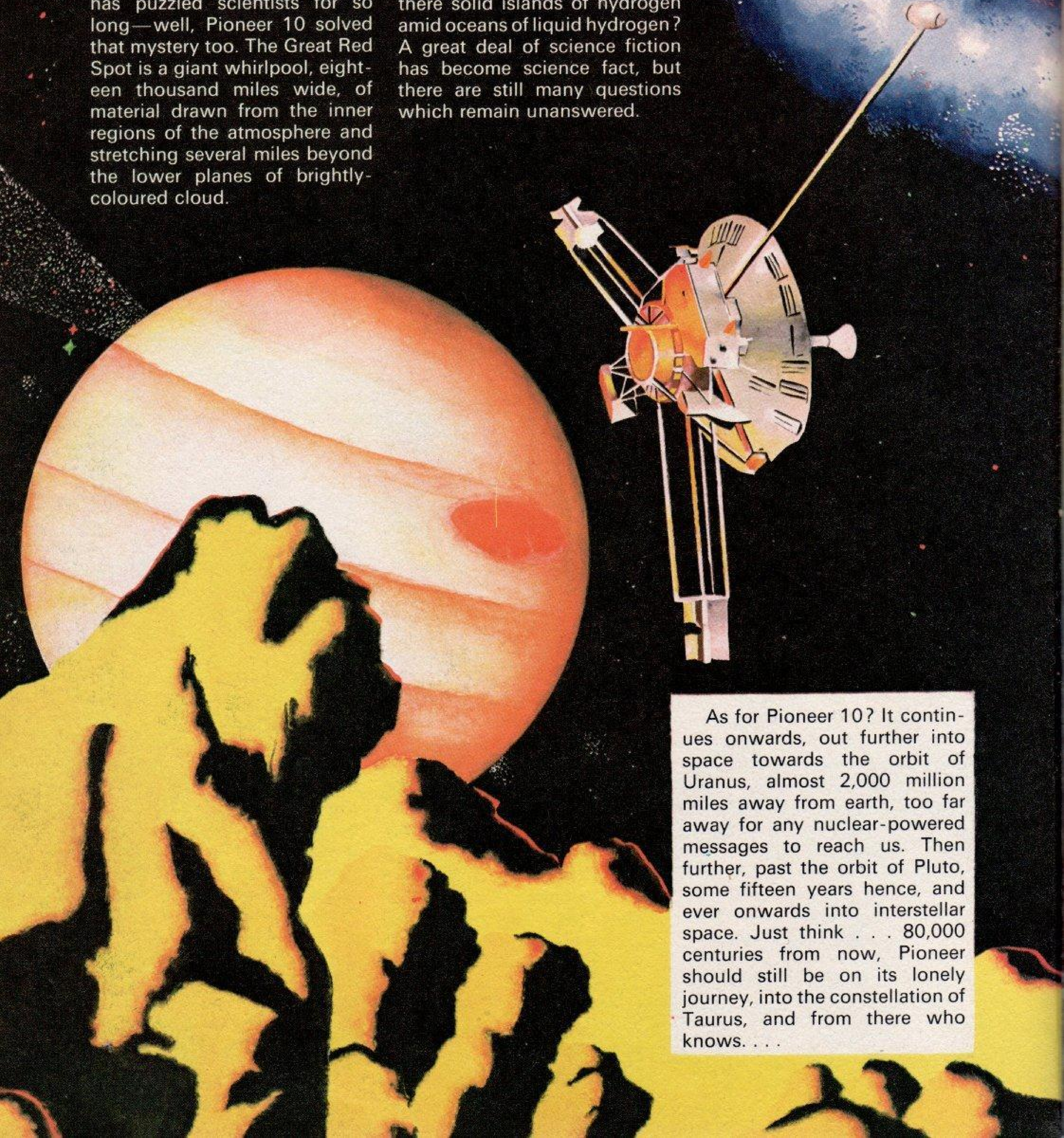
Ganymede, Europa, Callisto, Io: one by one Pioneer passed the orbits of these four of Jupiter's twelve moons. The size of planets, each moon showed evidence of some kind of atmosphere. But there was little time to ponder on this information, the spacecraft had reached a crucial point in its journey. Radiation levels outside and inside Pioneer 10 were increasing rapidly, six hours away from the spacecraft's closest visit to Jupiter on its predestined route the radiation level rose to 400 times the lethal level for human beings. The high energy electron emissions threatened to overwhelm the safety margin which the scientists had built into Pioneer. It looked very much as though the spacecraft would be silenced forever.

Only one hour before Pioneer was due to get its closest to Jupiter the radiation levels had reached saturation point, the spacecraft's electrical current had fallen off dramatically, and the temperature of the nuclear generators was rising all the time.

Just in the nick of time the radiation level began to drop; Pioneer had reached a 'quiet' zone. It meant survival. At 6.25 pm on December 3rd, Pioneer 10 came its closest to Jupiter, 81,000 miles above the planet's surface and travelling, with the aid of gravity, at a speed of 80,000 mph.

Jupiter: 8,500 times bigger than a full moon here on earth, 12,000 times as bright, and shrouded with swirling clouds of reds, pinks, yellows and browns. The scientists think that some primitive form of life may be contained in those brown clouds. That was Jupiter at close proximity. And as for the famous 'Great Red Spot' which has puzzled scientists for so long—well, Pioneer 10 solved that mystery too. The Great Red Spot is a giant whirlpool, eighteen thousand miles wide, of material drawn from the inner regions of the atmosphere and stretching several miles beyond the lower planes of brightly-coloured cloud.

Smaller, heavier, only one quarter of earth's density and with a gravity pull two and a half times as strong as that on earth—strong enough to flatten whole mountain ranges on earth—Jupiter has imparted a wealth of knowledge to the spacecraft. But still there are many mysteries to solve. What lies beneath those massive cloud belts? Are there solid islands of hydrogen amid oceans of liquid hydrogen? A great deal of science fiction has become science fact, but there are still many questions which remain unanswered.

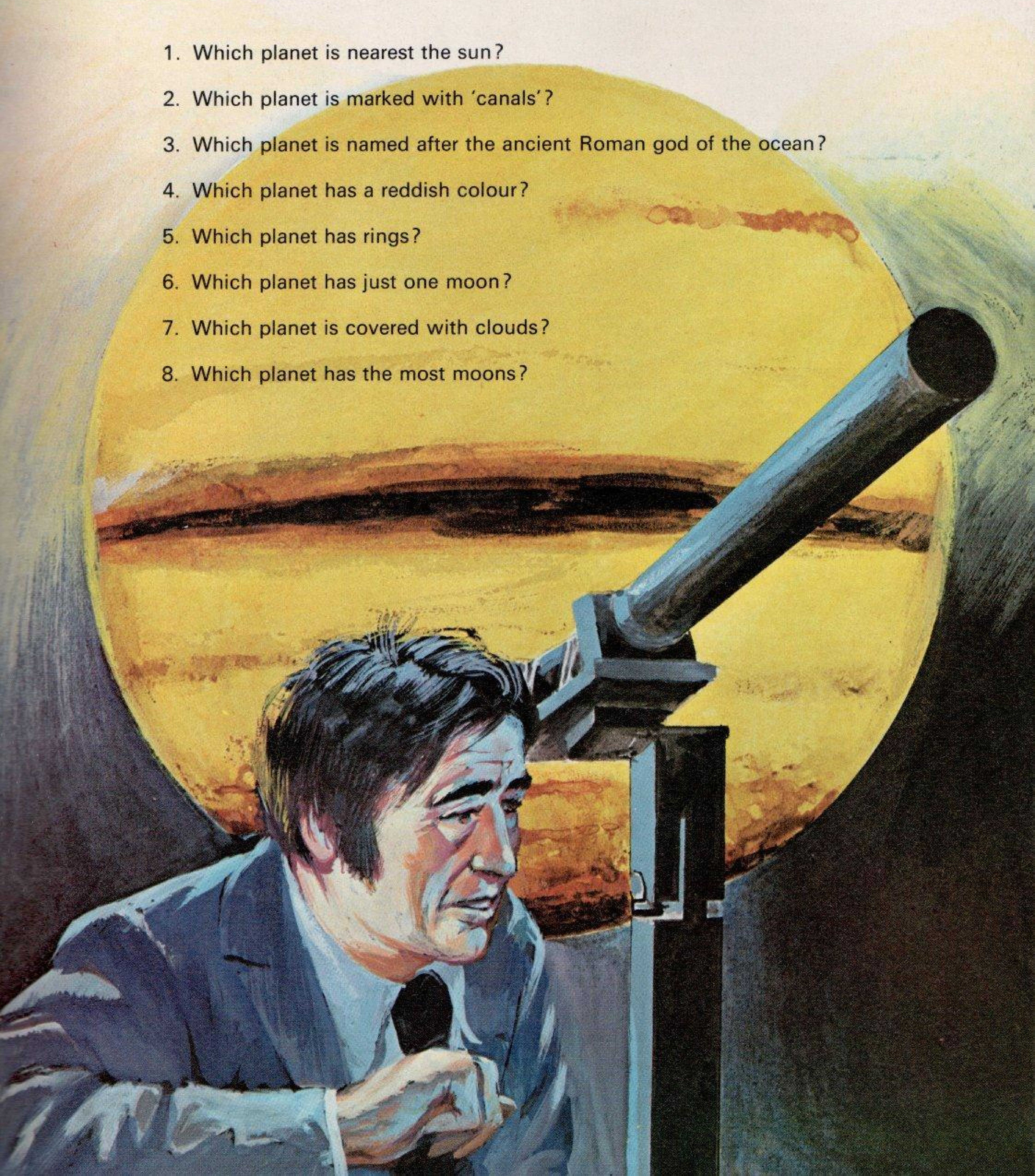


As for Pioneer 10? It continues onwards, out further into space towards the orbit of Uranus, almost 2,000 million miles away from earth, too far away for any nuclear-powered messages to reach us. Then further, past the orbit of Pluto, some fifteen years hence, and ever onwards into interstellar space. Just think . . . 80,000 centuries from now, Pioneer should still be on its lonely journey, into the constellation of Taurus, and from there who knows. . . .

PUZZLING PLANETS

How much do you know about the planets in our solar system? Dr Who, of course, knows the answers to all these questions, so check your answers with his on page 60 and see how many you get right.

1. Which planet is nearest the sun?
2. Which planet is marked with 'canals'?
3. Which planet is named after the ancient Roman god of the ocean?
4. Which planet has a reddish colour?
5. Which planet has rings?
6. Which planet has just one moon?
7. Which planet is covered with clouds?
8. Which planet has the most moons?



The Hospitality on Hankus

As the grey nothingness of the trans-dimensional flux faded from the screen it seemed as if all hell had been let loose. The Tardis was flung violently around, sparks flew from the control panels . . . and Harry, Sarah and the Doctor bounced helplessly off the ceiling, walls and floor.

The screen showed them to be in the midst of a green mish-mash that was constantly changing shape and spouting great gouts of water into the dark, red coloured air. A terrifying roar reverberated round them. Sucking, slushing sounds came from beneath them. For a second it seemed as if the Tardis was caught fast on something solid, but then it was off again, bobbing and diving in the morass.

"Ouch!" Harry's arm crashed into the support of a chair fixed to the floor of the Tardis. With his other hand he reached out and held on for dear life. Using all his strength he managed to pull himself onto the chair and strap himself in. Sarah rolled by and he caught her by the ankle.

"I'll hold you while you try to get hold of that chair!"

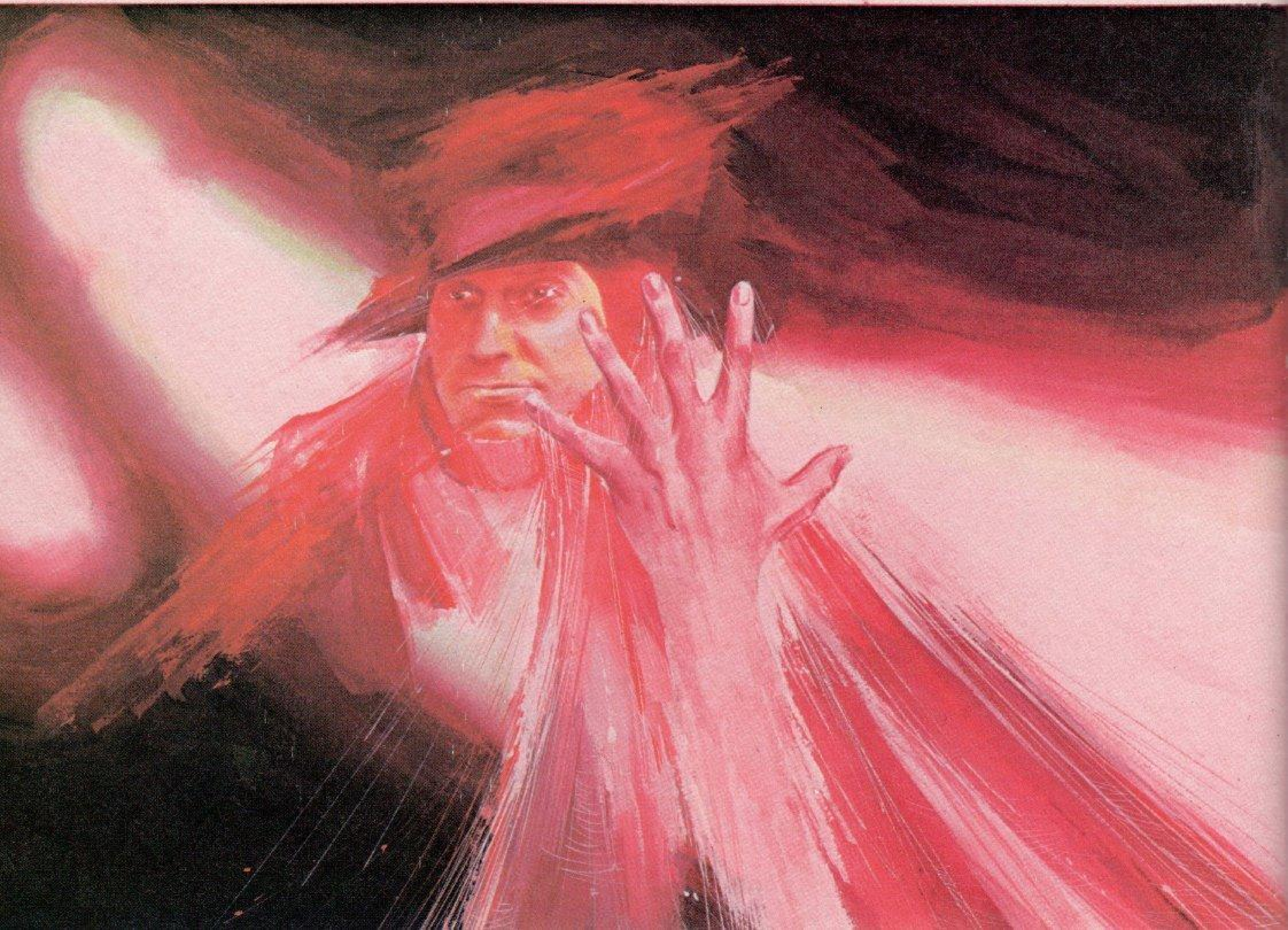
Sarah grabbed the chair and pulled, but a sudden lurch tore her hands away and only Harry's firm grip on her ankles kept her from smashing into the ceiling. Strapped upside down in his seat, Harry began to swing her to and fro.

"Come on, swing! When I've got up momentum you should be able to reach it again!"

Harry swung Sarah back and forth and at the top of each arc she made a grab for the chair that was anchored on the upside down floor of the Tardis. Each swing brought her nearer, but being a human pendulum was extremely exhausting and she was beginning to feel dizzy, as if she'd never quite reach the comparative safety of the chair.

"Come on, Sarah!" encouraged Harry. "Come ON, old girl! I know you can do it! Don't let me down!"

Sarah spluttered. Let him down? She'd knock him down if he didn't stop treating her like a piece of



quaint mindless pottery. With a tremendous effort she jack-knifed her body, caught hold of the chair and swung herself across.

She was hanging from the arms of the chair, wondering how she was going to pull herself up, when the Tardis did it for her. The screen showed a sudden surge of green and the time-machine did a half somersault, leaving Sarah standing on her head on the seat of the chair.

The Doctor was luckier. Before the Tardis had righted itself he had been sitting on the ceiling watching the antics of Harry and Sarah on the floor above him. The turnover sent him flying back towards the floor, and dumped him unceremoniously in the largest seat in front of the main control panel. Within seconds all three were strapped in.

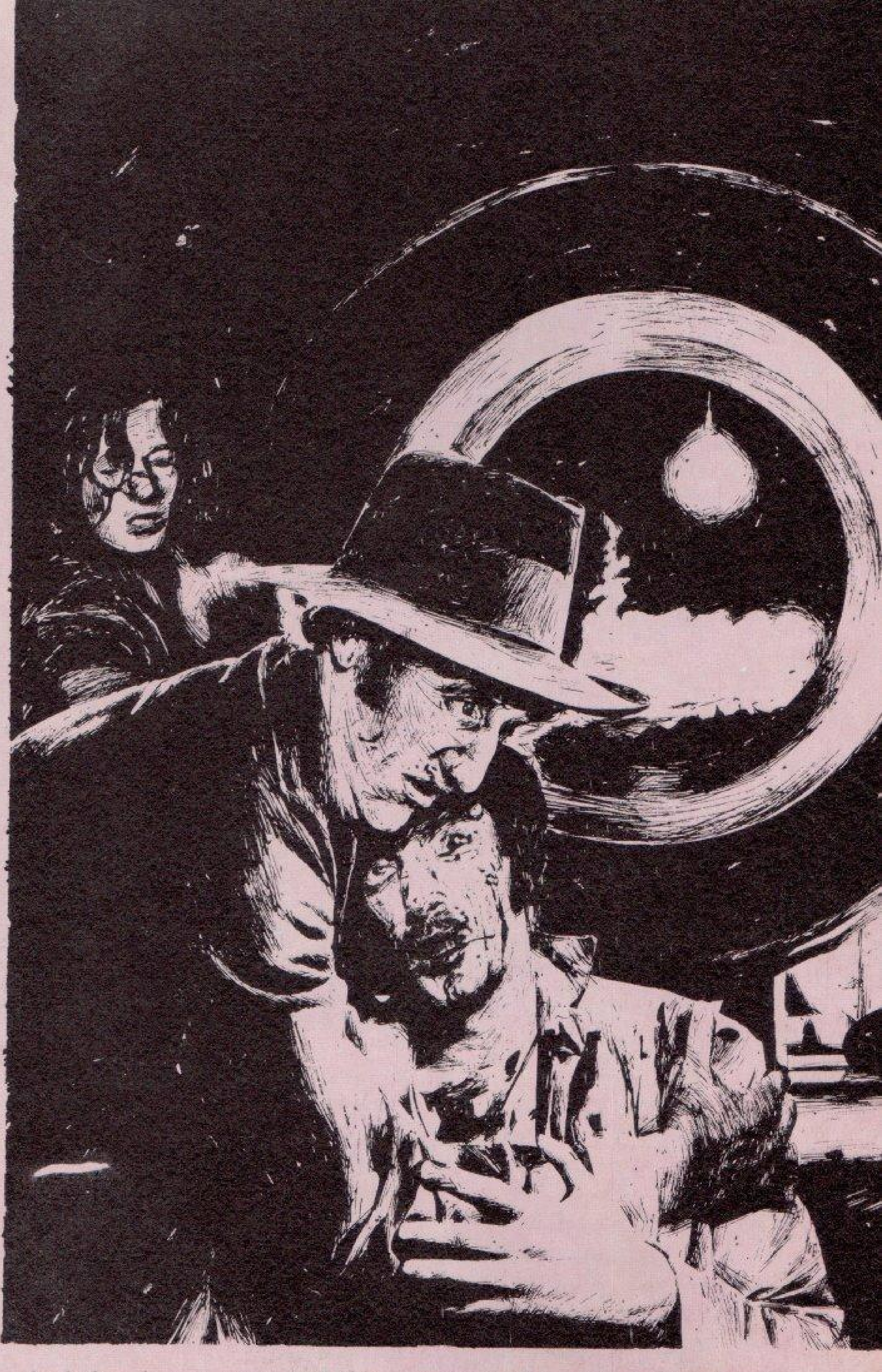
The rocking did not stop; but they were able to concentrate their attention on the screen that showed what was going on outside the Tardis.

The pulsating green wetness still surrounded them and Harry asked the Doctor whether it wouldn't be better to fly off anywhere, to any time, rather than stay here being knocked about like a cork in a washing machine.

"Nonsense," answered the Doctor, "I thought you sea-dogs liked a bit of a ride. And there's no danger of the Tardis being crushed – the dimensional regulator will see to that."

Harry and Sarah resigned themselves to accepting whatever might happen to them. The situation was out of their control. But even their resolve to go along with whatever the Doctor ordered was shaken when they saw the green mass fly suddenly past them as though being sucked into a vacuum.

The Tardis banged into something solid and stuck fast. There were noises of every description coming from outside. Wet noises, dry, grinding noises, deep rumbles, loud sharp crunches, squeaks, groans and bangs were all sounding together as the green substance rushed past the screen at a phenomenal speed.

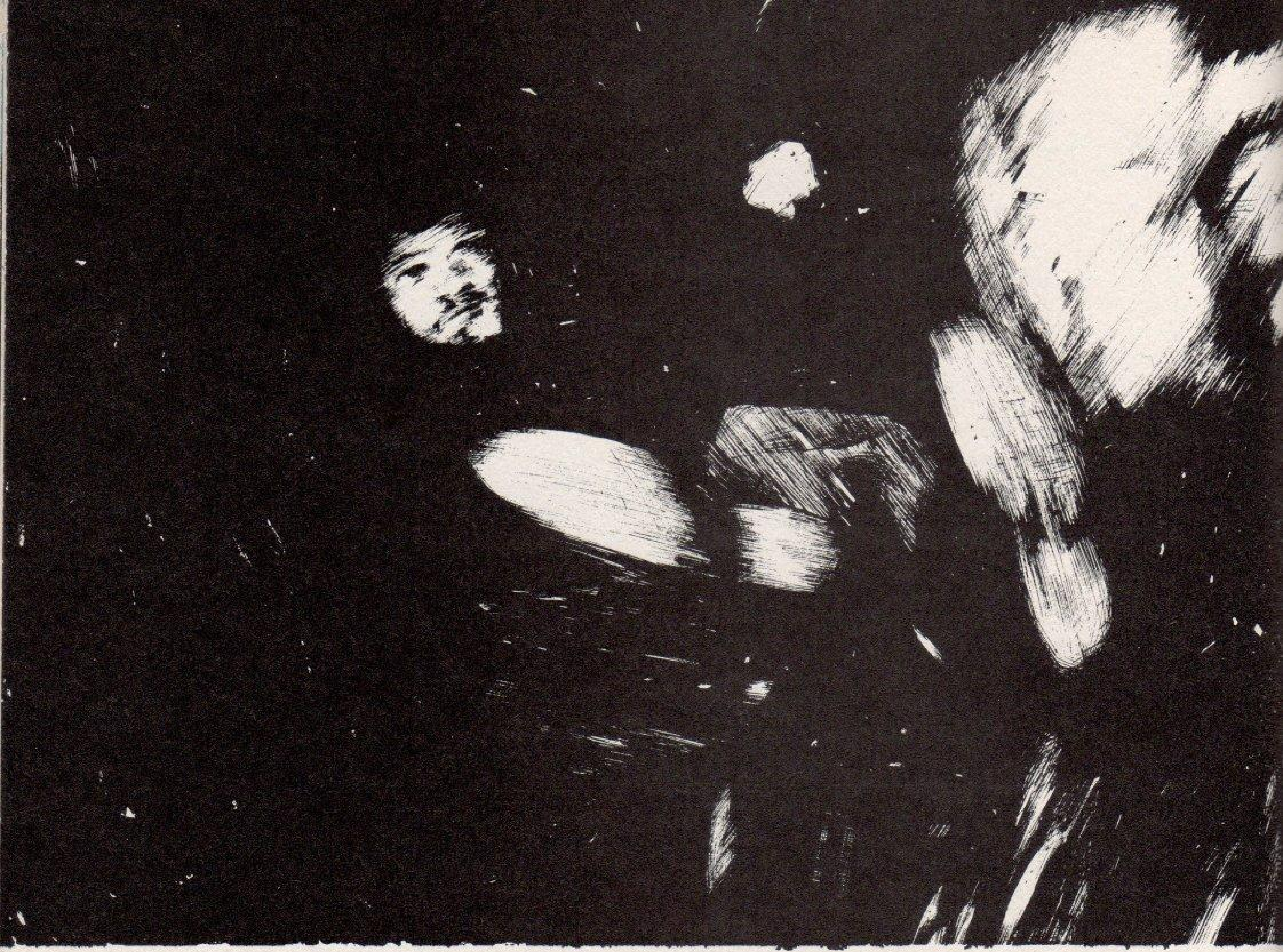


And then it was gone, and the three of them stared in wonder at the sight before them. They were wedged between two huge pointed white pillars. Stretching far ahead of them in a semi-circle was a long row of identical white uprights, fashioned so meticulously and arranged in such perfect symmetry that the Doctor was reminded of the Drunes magic circle on Skamus 4.

But whatever ritual the pillars had been constructed for seemed irrelevant. Next to them, seeming to grow from the ground itself, and measuring what Harry reckoned must be a mile in length, was a heaving, quivering, headless mass of thickly-veined flesh!

On the planet Hankus in the Maston Galaxy, Jen-Ka was feeling excited. He had been waiting for this day to arrive for almost five semons. He dipped his reptilian face in a bowl of warm water and stroked his two antennae in front of a polished glass. His father had told him he must look his best for the visit.

Jen-Ka thought back to the last



time the Doctor had stayed at his house. He had only been young then, barely two foot high, but the stories Doctor Who had told him about the cloud men of Multar, the wondrous highway of diamonds on Zimmar, the multi-coloured Widge men of Neuronis, lived on in his mind. He could not wait to ask Doctor Who about the Imago Cascade on Ferras he had read so much about.

Jen-Ka's mother, Jen-La, was busy preparing their dwelling unit for the Doctor's visit. There was so much to be done and so little time to do it in. If only Jen-Ka would go out and play for a while!

Jen-Ka turned suddenly from the polished glass and his upper right arm brushed the water bowl. It fell to the floor with a crash and a dark stain spread across the floor. He heard his mother coming to investigate, so he snatched up his Spadcaster and ran outside.

Down at the pond, Jen-Ka examined the bank to see if anyone had been Spad-catching before him. There were no marks. Good. The Spads would not be on alert. It was quite likely he could catch a fair sized specimen to take back and show Doctor Who.

He cast his lines, settled down by a Runsah bush, and reached up to pick the ripest fruit. He bit deep into it and waited for his mother to come and tell him Doctor Who had arrived . . .

Inside the Tardis, even the Doctor was concerned. He was reaching for his notebook to check his calculations when the Tardis moved again.

"Doctor!"

He looked up to see the headless monstrosity pushing against the Tardis, as if trying to free it from the pillars. The Doctor studied its movements. The pressure exerted by the creature was immense, and yet he could sense it was controlled. Obviously whatever it was had a certain intelligence.

Then suddenly they were free. Almost gently, the thing carried them high up over the pillars. They saw the pillars were built at the edge of a steep drop, and the Doctor could have sworn the whole earth moved before there was a loud bang and they were flying, then falling, falling.

"Hold tight!" he ordered grimly.

The screen showed a flash of whirling daylight before the crash came. The straps on the Doctor's seat burst open and he was flung once again to the floor. Harry stuck out a leg to stop him slithering into the wall. Sarah's head was smashed into her chest and she was sure she had bitten the end of her tongue off.

And then they were falling again, but slower this time. Through the screen they could see large silver bubbles floating upwards past them. After about five minutes they landed with a bump in a slow-moving dirty brown cloud.

It was then that Sarah could stand it no more. With her eyes fixed firmly on the screen she flung her head back and screamed and screamed and screamed. As the Doctor went across to slap her out of it he glanced at the screen and stopped dead.

Coming slowly towards them through the mud and the slime, its antler-like set of pincers opening and shutting menacingly, was a large, four-headed lobster.

They felt the Tardis being lifted once again, saw the four huge heads flash across the screen, saw the small pouch on the underside of the lobster opening, and then there was blackness.

Jen-Ka tossed the core of the Runsah fruit into the pond with his lower left arm and spat after it. That was the only thing wrong with Runsah fruits – the pips kept getting stuck in your teeth.

He checked the dials on his Spadcaster, but they showed no Spads investigating his bait. As usual, the effects of the Runsah fruit and the four hot suns that came together in the sky at this time of day combined to make him feel sleepy. It was a feeling he did nothing to dispel, for he knew his mother would tell him when Doctor Who arrived, and there was nothing he could do to hurry the Spads into taking his bait. And anyway, waiting was so boring. He closed his eyes and drifted off into sleep.

He was awoken by the Spadcaster signalling a catch. Using all of his four arms, he operated the line retractors. Slowly the last line came out of the water and there, on the end, was a full-sized Spad.

What a beauty! The Doctor would surely be interested in this one! Jen-Ka looked up in the sky. Only one of the suns was still visible. *Surely* the Doctor had come by now. He put the Spad in his aqua-hold and set off home.

Back in the Tardis, things were much quieter. Sarah was a little bit prickly, although neither the Doctor nor Harry had mentioned her outburst. In fact, the Doctor hadn't mentioned anything. He was poring over his notes and whistling to himself.

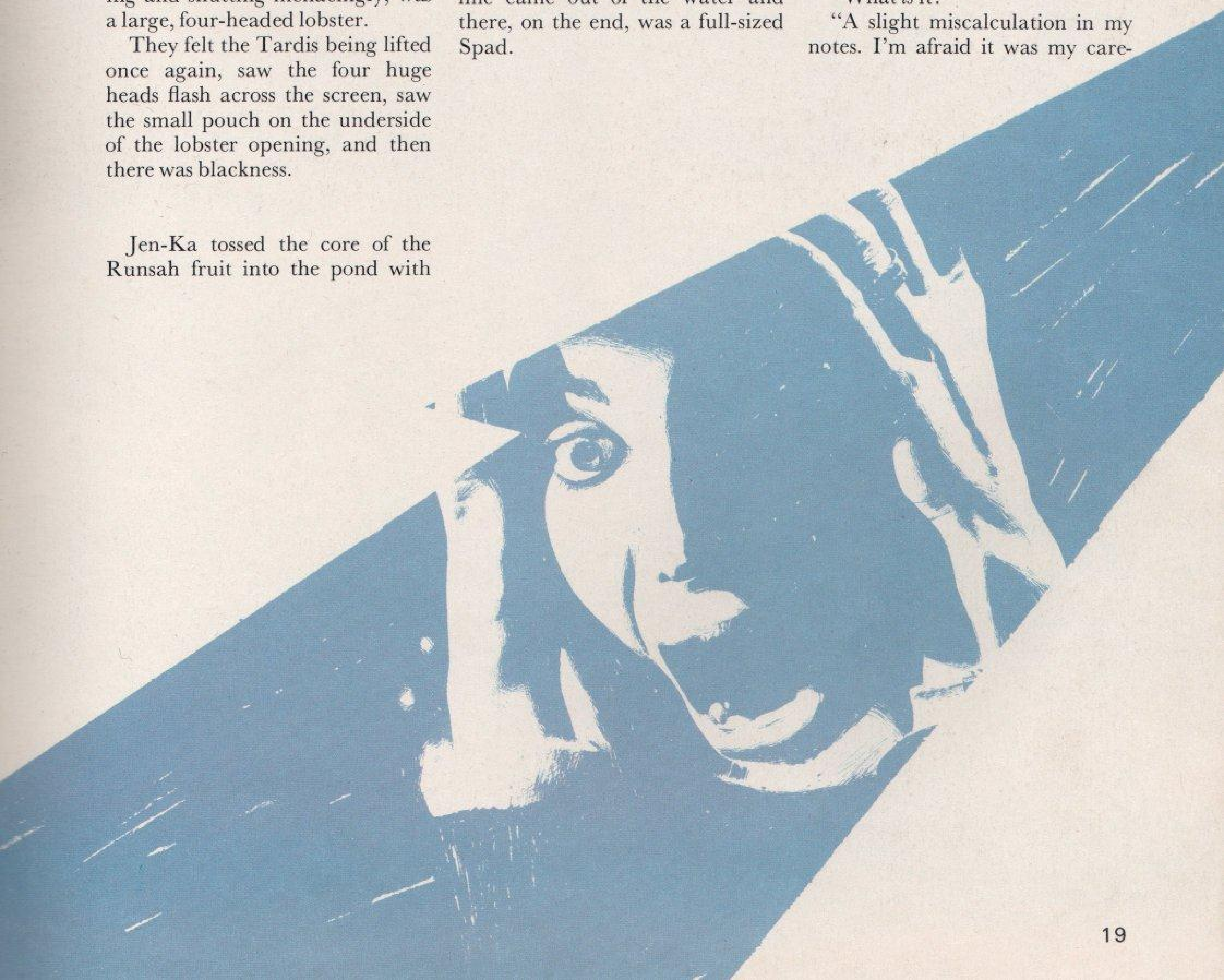
Eventually the whistling stopped and he got to his feet, muttering "Dear me, dear me, dear me," as he studied one page of his notes at arm's length.

"What is it, Doctor?"

"Dear me, dear me, dear me."

"What *is* it?"

"A slight miscalculation in my notes. I'm afraid it was my care-



lessness we've got to thank for today's little adventure."

"You mean you can get us out of here?"

"Yes, yes, yes," the Doctor's manner was decidedly calm. He bent over the trans-dimensional control panel and pondered a gauge. "We can get out of here easily enough. But the problem is doing it at the right time."

When Jen-Ka reached home he was bitterly disappointed that the Doctor had not arrived. Jen-Sa, his father, told him not to worry and to put the Spad in the Aqua-viewer ready for the Doctor to inspect it when he got there.

Jen-Ka took the aqua-hold outside and lifted the Spad up, ready to take it into the Aqua-view room. As he did so the Spad opened one of its pincers and nipped him on the arm.

Caught by surprise, Jen-Ka waved his arm violently in the air. A few tiny particles fell from the Spad's food pouch and scattered on the floor. The next thing Jen-Ka saw was a Police Phone Box standing in front of him with the doors sliding slowly open.

"Marvellous specimen," said the Doctor, coming out and reaching for the Spad. He waved it close to Sarah's face. "Not so frightening now, is he? Come on, Jen-Ka, let's pop him in the Aqua-viewer, then you can take me to see your mother and father."

Harry, Sarah and the Doctor spent some five minutes shaking the hands of Jen-Ka's family in absolute silence, as is the custom among the adults of Hankus. It was only when he had fully observed this simple politeness that the Doctor felt free to talk.

"Jen-Sa! Jen-La! How nice to see you looking so well. I must apologise for my lateness, but we had a little adventure on the way."

Jen-Ka's antennae glowed.

"Was it the Besterons?" he asked excitedly. "Or the Arkorian stoat men? The Lazors? The Cloud men of Multar?"

"No, it was none of them, Jen-Ka," said the Doctor, putting his hand on the young Hankusian's shoulder. "The adventure we had was with you!"

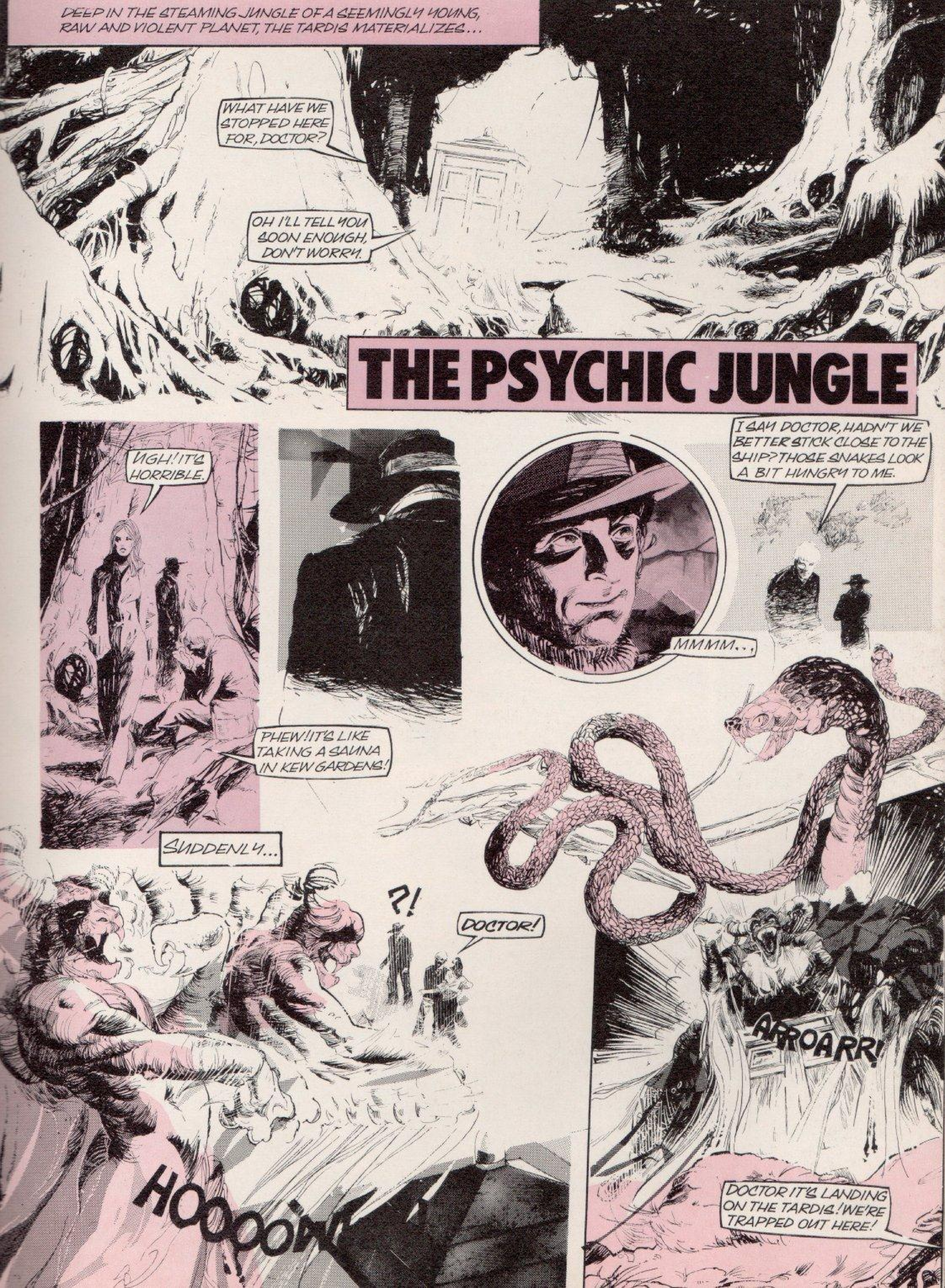
"W-with me?"

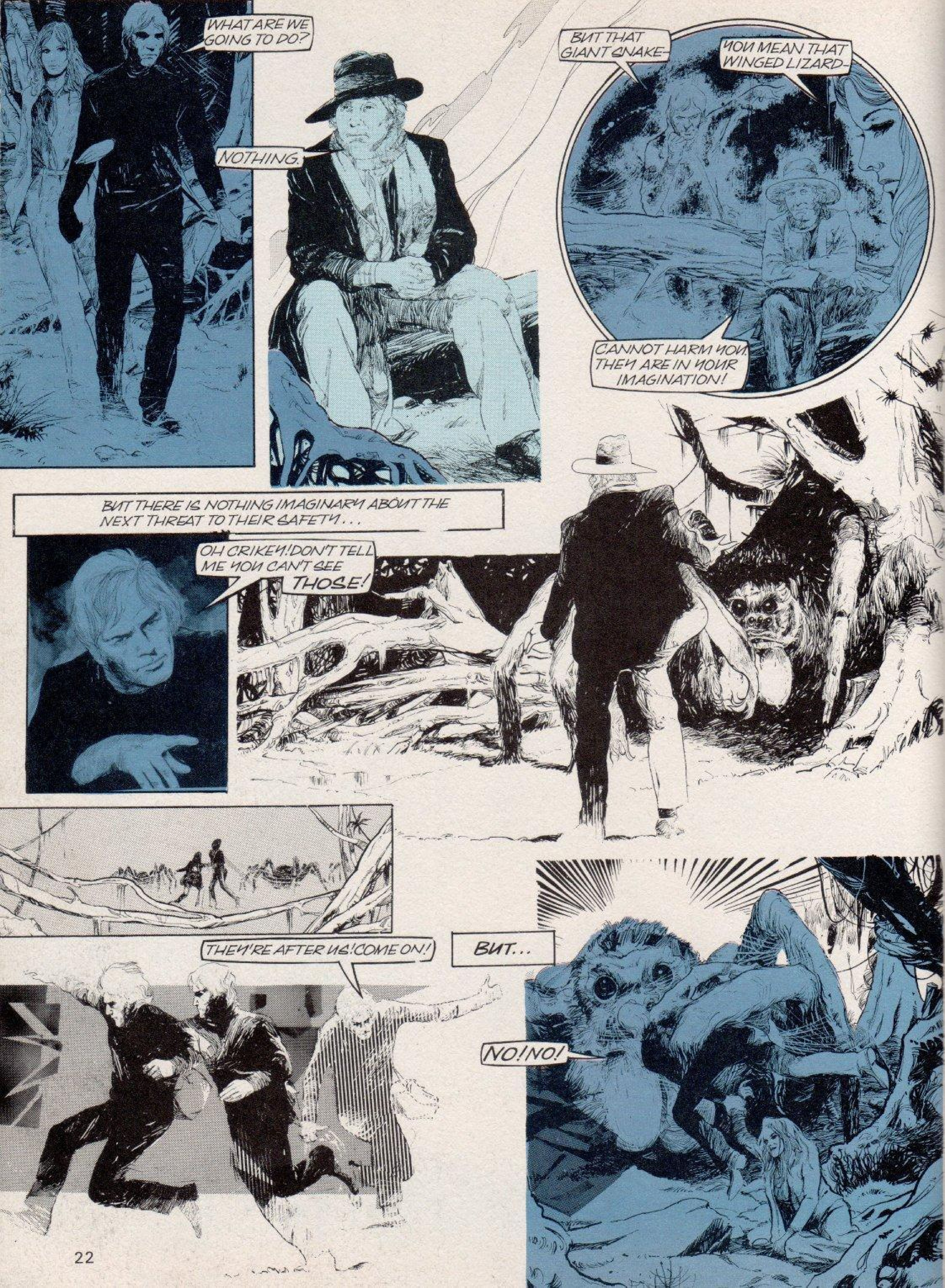
"Yes, with you. In crossing the trans-dimensional flux I'm afraid I was silly enough to calculate the lowest materialisation denominator to the power of ten and not ten thousand. We materialised at one thousandth of our expected size on a Rhunsah fruit that you were about to eat! We got caught between your teeth and, thinking we were a Rhunsah fruit pip, you dislodged us with your tongue and spat us out into the pond. And if you hadn't happened to catch the very Spad that picked us up and put us in its food pouch, there's no telling where we would be now."

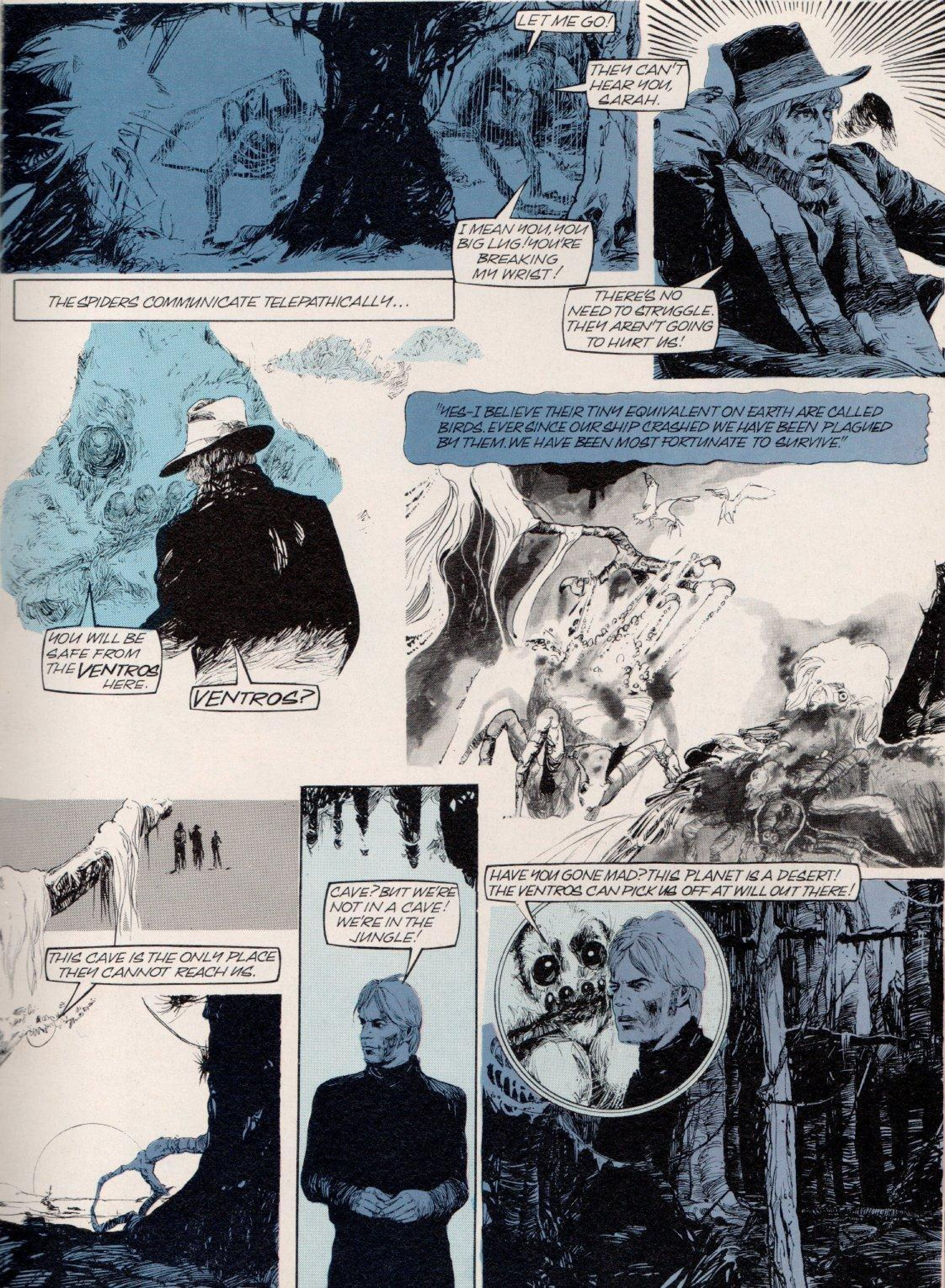
Jen-Ka's antennae positively shone with delight throughout the whole of the evening. Jen-Sa and Jen-La told him again and again that it was rude to do so at the table, especially in front of guests, but Jen-Ka just couldn't help it.

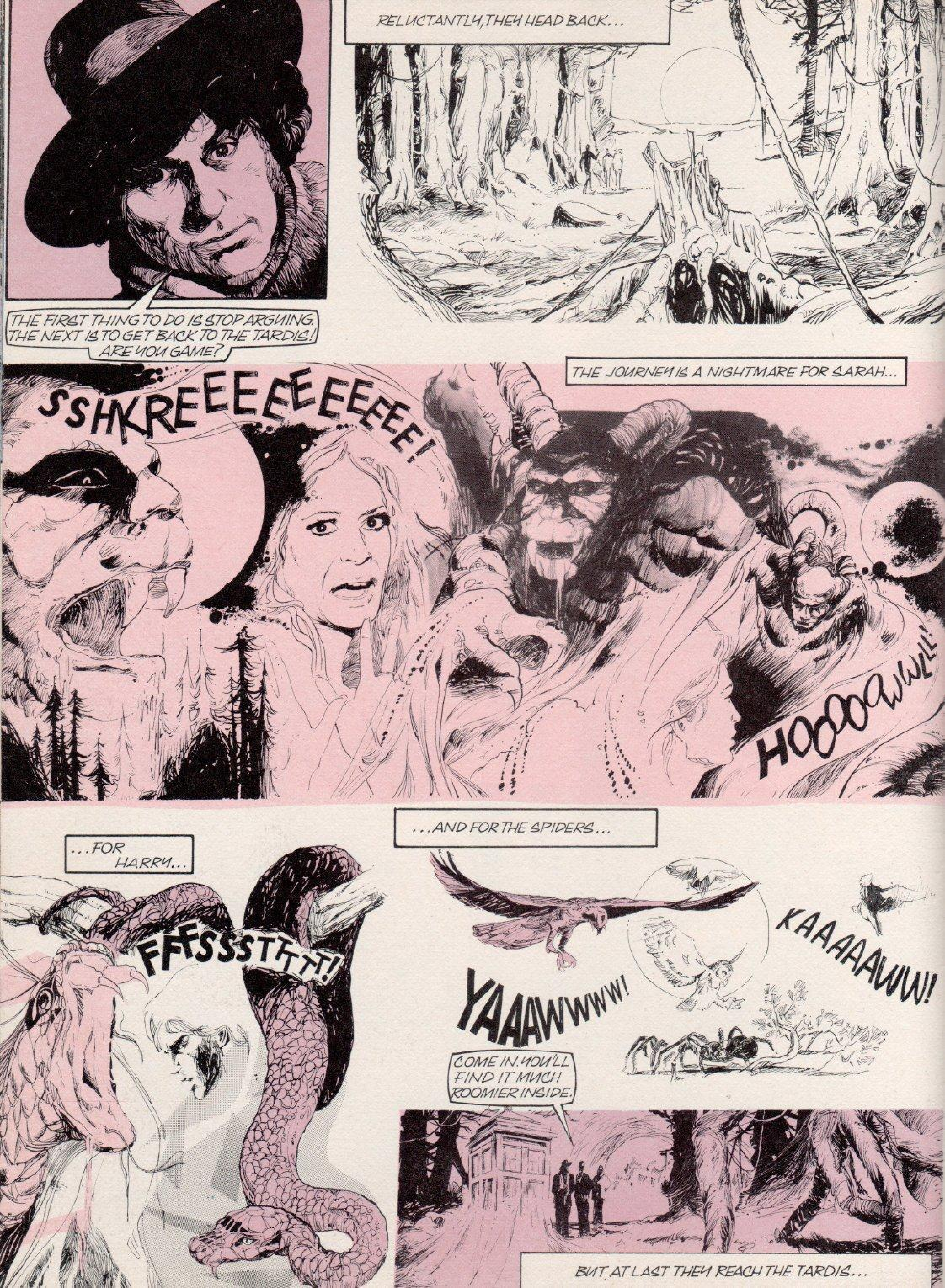
It got to the stage when Jen-La started smiling indulgently at her son's obvious delight. And, despite a reproving look from Jen-Sa, Harry, and Sarah, remembering the events of the day, began to join in. The Doctor managed to keep a straight face until he heard Jen-Sa's high pitched hum, which is a polite Hankusian form of laughter, and then he too started laughing.

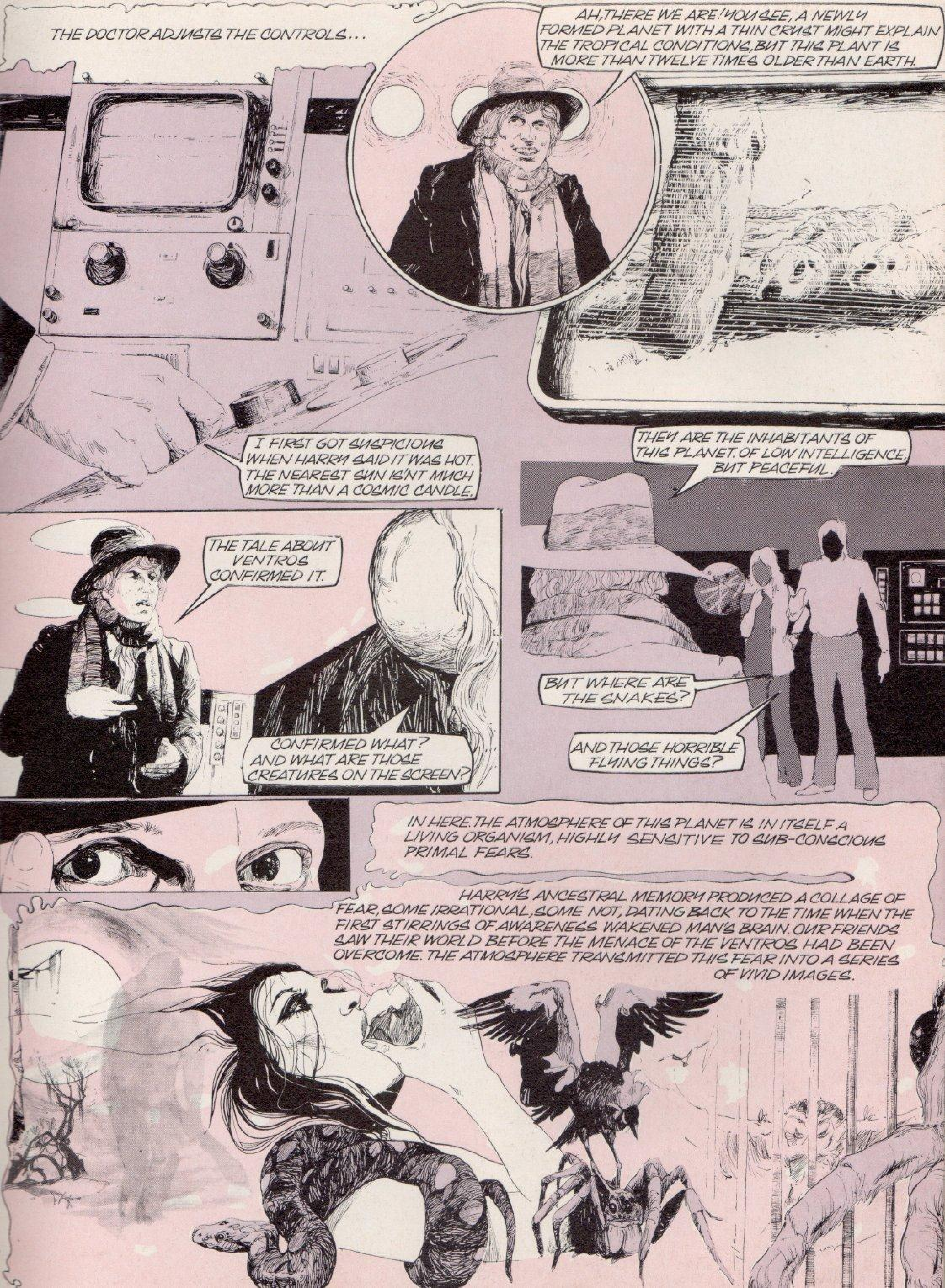
THE PSYCHIC JUNGLE

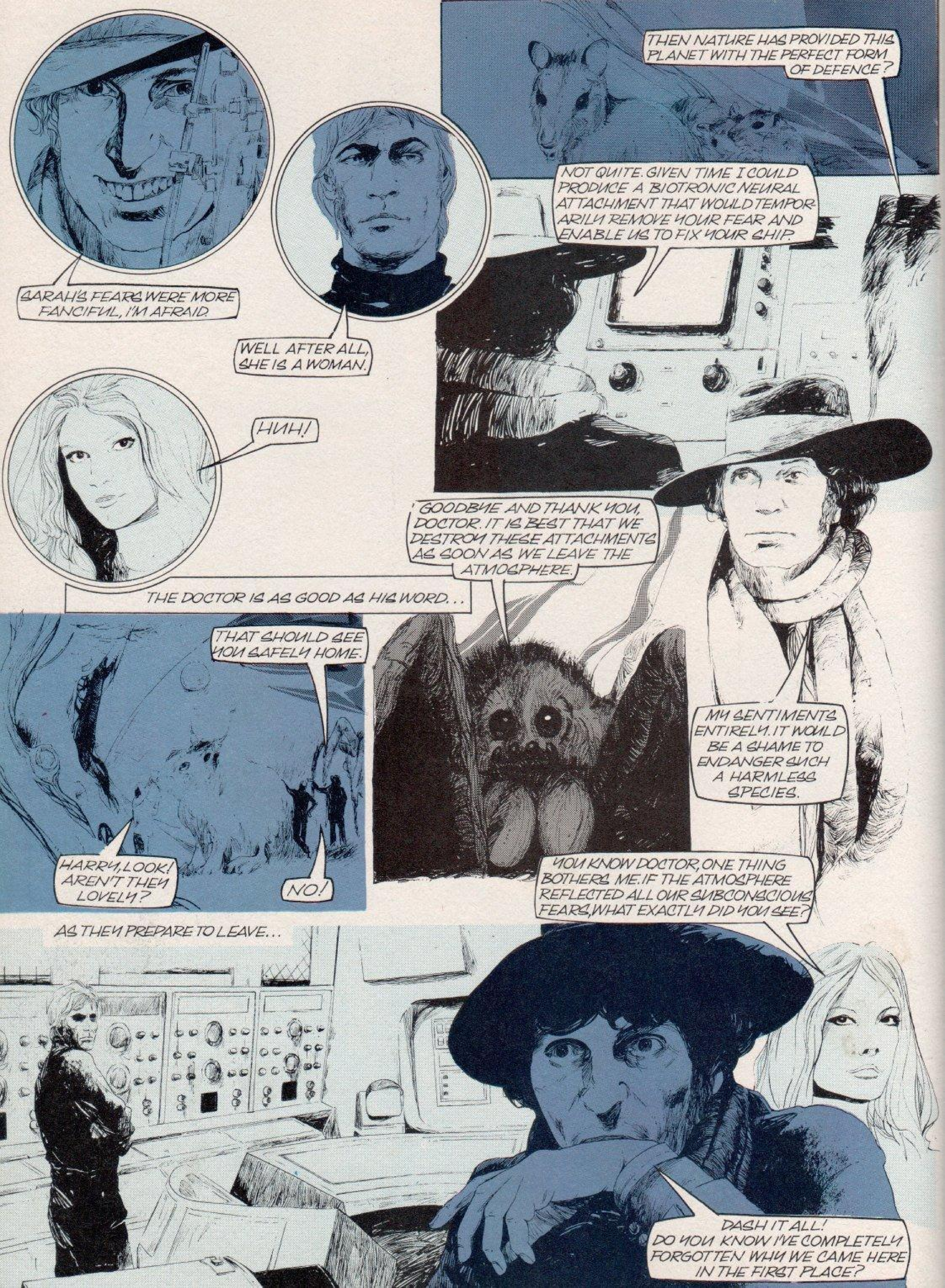

DEEP IN THE STEAMING JUNGLE OF A SEEMINGLY YOUNG, RAW AND VIOLENT PLANET, THE TARDIS MATERIALIZES...
WHAT HAVE WE STOPPED HERE FOR, DOCTOR?
OH I'LL TELL YOU SOON ENOUGH, DON'T WORRY.
THE PSYCHIC JUNGLE
UGH! IT'S HORRIBLE.
PHEW! IT'S LIKE TAKING A SAUNA IN KEW GARDENS!
MMMM...
I SAY DOCTOR, HADN'T WE BETTER STICK CLOSE TO THE SHIP? THOSE SNAKES LOOK A BIT HUNGRY TO ME.
SUDDENLY...
?!
DOCTOR!
HOOOOOW
ARROARR!
DOCTOR IT'S LANDING ON THE TARDIS! WE'RE TRAPPED OUT HERE!


WHAT ARE WE GOING TO DO?
NOTHING.
BUT THAT GIANT SNAKE-
YOU MEAN THAT WINGED LIZARD-
CANNOT HARM YOU. THEY ARE IN YOUR IMAGINATION!
BUT THERE IS NOTHING IMAGINARY ABOUT THE NEXT THREAT TO THEIR SAFETY . . .
OH CRIKEY! DON'T TELL ME YOU CAN'T SEE THOSE!
THEY'RE AFTER US! COME ON!
BUT...
NO! NO!


LET ME GO!
THEY CAN'T HEAR YOU, SARAH.
I MEAN YOU, YOU BIG LUG! YOU'RE BREAKING MY WRIST!
THE SPIDERS COMMUNICATE TELEPATHICALLY...
THERE'S NO NEED TO STRUGGLE. THEY AREN'T GOING TO HURT US!
YOU WILL BE SAFE FROM THE VENTROS HERE.
VENTROS?
"YES—I BELIEVE THEIR TINY EQUIVALENT ON EARTH ARE CALLED BIRDS. EVER SINCE OUR SHIP CRASHED WE HAVE BEEN PLAGUED BY THEM. WE HAVE BEEN MOST FORTUNATE TO SURVIVE."
THIS CAVE IS THE ONLY PLACE THEY CANNOT REACH US.
CAVE? BUT WE'RE NOT IN A CAVE! WE'RE IN THE JUNGLE!
HAVE YOU GONE MAD? THIS PLANET IS A DESERT! THE VENTROS CAN PICK US OFF AT WILL OUT THERE!


RELUCTANTLY, THEY HEAD BACK...
THE FIRST THING TO DO IS STOP ARGUING. THE NEXT IS TO GET BACK TO THE TARDIS! ARE YOU GAME?
THE JOURNEY IS A NIGHTMARE FOR SARAH...
SSHKREEEEEEEEEEE!
HOOOOWWLLL!
...FOR HARRY...
FFFSSSTTTTT!
...AND FOR THE SPIDERS...
YAAAWWWW!
KAAAAAWW!
COME IN. YOU'LL FIND IT MUCH ROOMIER INSIDE.
BUT AT LAST THEY REACH THE TARDIS...


THE DOCTOR ADJUSTS THE CONTROLS...
AH, THERE WE ARE! YOU SEE, A NEWLY FORMED PLANET WITH A THIN CRUST MIGHT EXPLAIN THE TROPICAL CONDITIONS, BUT THIS PLANT IS MORE THAN TWELVE TIMES OLDER THAN EARTH.
I FIRST GOT SUSPICIOUS WHEN HARRY SAID IT WAS HOT. THE NEAREST SUN ISN'T MUCH MORE THAN A COSMIC CANDLE.
THEN ARE THE INHABITANTS OF THIS PLANET, OF LOW INTELLIGENCE, BUT PEACEFUL.
THE TALE ABOUT VENTROS CONFIRMED IT.
CONFIRMED WHAT? AND WHAT ARE THOSE CREATURES ON THE SCREEN?
BUT WHERE ARE THE SNAKES?
AND THOSE HORRIBLE FLYING THINGS?
IN HERE. THE ATMOSPHERE OF THIS PLANET IS IN ITSELF A LIVING ORGANISM, HIGHLY SENSITIVE TO SUB-CONSCIOUS PRIMAL FEARS.
HARRY'S ANCESTRAL MEMORY PRODUCED A COLLAGE OF FEAR, SOME IRRATIONAL, SOME NOT, DATING BACK TO THE TIME WHEN THE FIRST STIRRINGS OF AWARENESS WAKENED MAN'S BRAIN. OUR FRIENDS SAW THEIR WORLD BEFORE THE MENACE OF THE VENTROS HAD BEEN OVERCOME. THE ATMOSPHERE TRANSMITTED THIS FEAR INTO A SERIES OF VIVID IMAGES.


SARAH'S FEARS WERE MORE FANCIFUL, I'M AFRAID.
WELL AFTER ALL, SHE IS A WOMAN.
HUH!
THEN NATURE HAS PROVIDED THIS PLANET WITH THE PERFECT FORM OF DEFENCE?
NOT QUITE. GIVEN TIME I COULD PRODUCE A BIOTRONIC NEURAL ATTACHMENT THAT WOULD TEMPORARILY REMOVE YOUR FEAR AND ENABLE US TO FIX YOUR SHIP.
THE DOCTOR IS AS GOOD AS HIS WORD...
THAT SHOULD SEE YOU SAFELY HOME.
GOODBYE AND THANK YOU, DOCTOR. IT IS BEST THAT WE DESTROY THESE ATTACHMENTS AS SOON AS WE LEAVE THE ATMOSPHERE.
MY SENTIMENTS ENTIRELY. IT WOULD BE A SHAME TO ENDANGER SUCH A HARMLESS SPECIES.
HARRY, LOOK! AREN'T THEY LOVELY?
NO!
AS THEY PREPARE TO LEAVE...
YOU KNOW DOCTOR, ONE THING BOTHERS ME. IF THE ATMOSPHERE REFLECTED ALL OUR SUBCONSCIOUS FEARS, WHAT EXACTLY DID YOU SEE?
DASH IT ALL! DO YOU KNOW I'VE COMPLETELY FORGOTTEN WHY WE CAME HERE IN THE FIRST PLACE?

SPACE TALK

SPACECRAFT FOOD

Can you imagine astronauts eating part of their spacecraft or even their navagational instruments? No? Well, this is not quite as silly as it may seem, because a Yorkshire scientist has put forward the theory that some time in the future the parts of the spaceship needed only for the lift-off could be made of edible substances which could later be eaten by the astronauts when they were in orbit. He suggests compressed steak, and vegetables such as carrots!

DENTISTRY IN SPACE

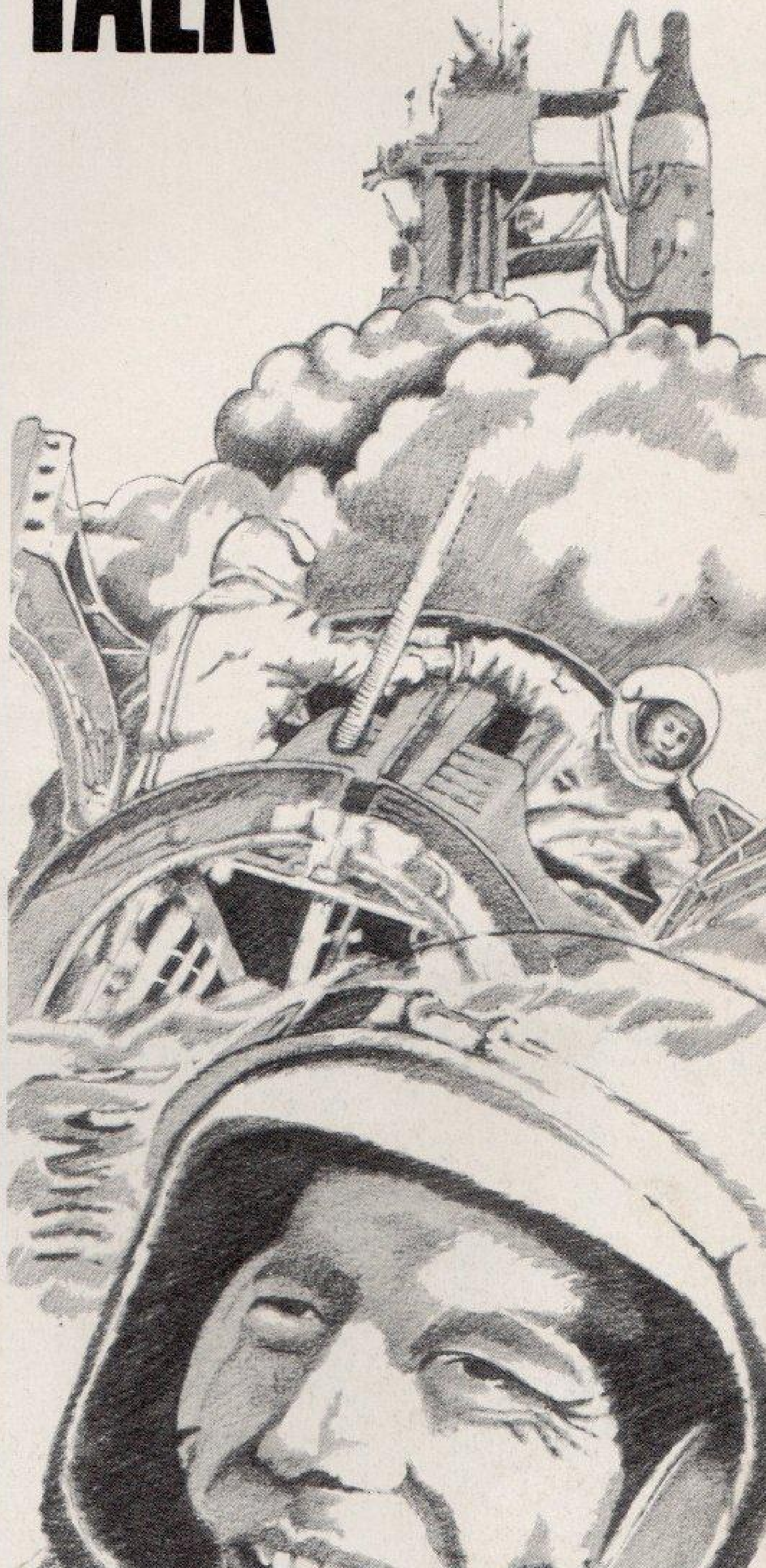
Now, as well as being well-versed in the art of spacecraft control, future astronauts will also have to be efficient dentists! No one can say when toothache may strike a person, and the space astronauts are no exception . . . toothache in space is just as painful and annoying as it is back on earth. And this is why the School of Space Medicine in Texas have come up with a 'do-it-yourself dentistry kit' which the astronauts may use on each other. In the kit, weighing less than a couple of pounds, is everything a budding dentist needs, including a hand-drill, syringes, anaesthetics, fillings and so on . . . next, please!

FASCINATING FIREBALLS

A strange phenomenon which has baffled and fascinated scientists for many years are the fireballs, ball lightning which streaks down from the skies and squeezes itself into houses, often chasing occupants up and down stairs, although it seldom injures anyone. Fireballs, however, have been known to singe clothing and one actually killed a pet cat. One peculiar fireball, seen by an American lady, bounced all over her diningroom and then completely dissolved, making a sound like glass being shattered!

SPACE CROCKERY

Much has already been written and argued about regarding those strange unidentified objects in the sky known, because of their shape as 'flying saucers'. George Adamski claims to have talked to a pilot of a flying saucer which came from Venus, and in a later book George told how he was actually taken on a trip in a flying saucer himself. The flying saucer pilots did not speak any understandable languages but managed to communicate with Adamski by means of signs. They wore tropical dress . . . and what appeared to be ski trousers! But the flying saucer pilots met by a certain Mr. Allingham breathed by oxygen connected to a tube in their noses and wore braces!



Dressed for the Job!

A Short History of the Pressurised Spacesuit

The first practical pressure suit was made in 1934 by the B. F. Goodrich Company in Los Angeles, at the request of Wiley Post, one of the world's most famous pilots. Moonlandings and spacewalks were at this time still very much things of the future but, for an air race from England to Australia, Post had hit on the idea of flying his plane in the incredibly powerful winds above 30,000 feet, and even at this comparatively low altitude, protection is necessary.

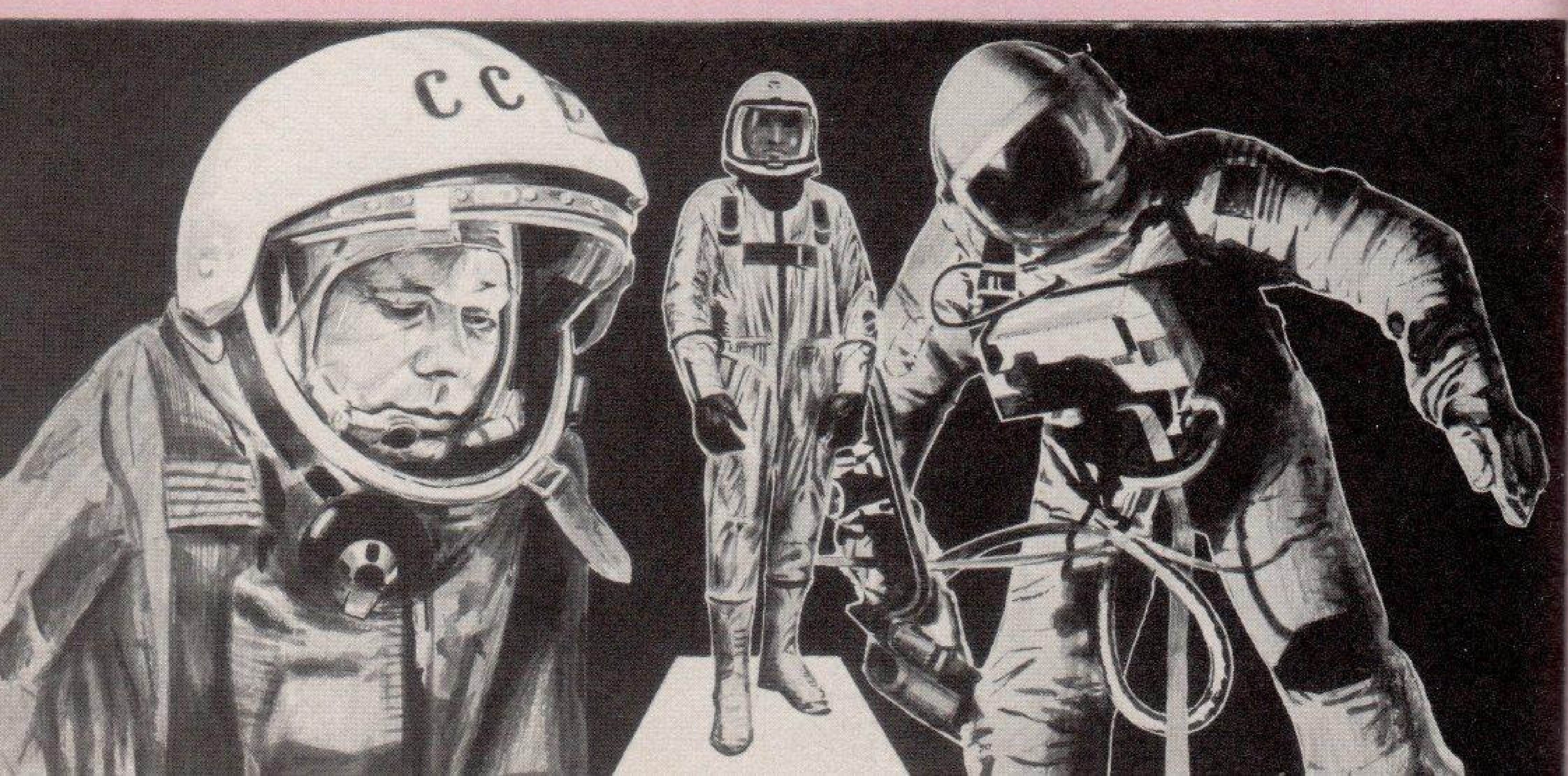
Imagine that his aircraft had become damaged, so releasing the air pressure. Without a suit, at only 26,000 feet, oxygen starvation would begin in about two minutes, unconsciousness occurring in three. At 63,000 feet, air pressure is so low that liquids will boil into vapour at 98°F. This is, of course, the average human body temperature, and the unprotected being's blood would be affected in this way, killing or at least crippling him.

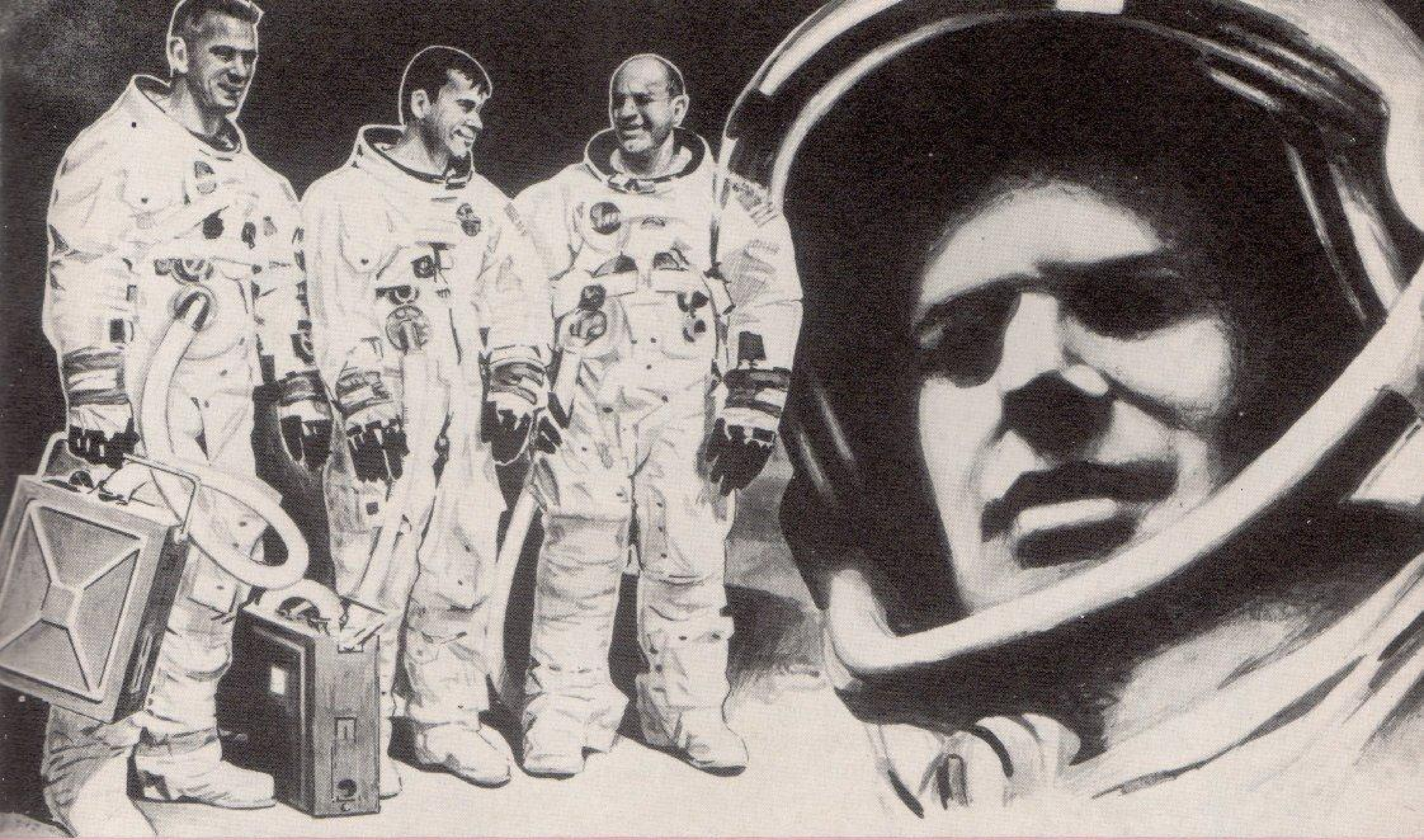
The early pilot pressure suits were made of close-fitting rubber, with inflatable tubes running along the arms and legs. In danger, a pressure-sensing valve filled the tubes with oxygen and they clamped the suit down hard. The protection was completed by a tight helmet sealed to the suit, and the breathing difficulty solved by a method called *reserve breathing,* in which the pilot had high-pressure oxygen forced into his lungs.

Certainly these suits saved lives, but they weren't very comfortable. It was in 1961, in the excitement of the first space shots, that this aspect of their design was considered. The suits for *Mercury*—America's first programme which blasted off less than a month after Flight Major Yuri Gagarin's history-making flight—were again made by the Goodrich Rubber Company who had been responsible for Post's pioneering gear back in 1934. This time, however, they used a fine mesh link-net material as a basis which, though strong, was much more flexible and allowed the pilot far greater freedom of movement under pressure. Other improvements included helmets which protected the ears against the shattering noise of rocket engines, and incorporated a cooling system to act against the rise in temperature on re-entry into the atmosphere.

Man had ridden in space! The logical next stepping stone to the moon was to get out and walk and, on 18th March 1965, Russia launched the two-man *Voskhod 2*, flown by Pavel Belyayev and Alexi Leonov. This craft was built with an airlock tunnel leading to a hatch which in turn led out to space itself. Leonov's suit was fitted with a lifeline which enabled him to embark upon the first walk—or rather, float—in space. For ten minutes he drifted above the earth, and was apparently elated by the experience, as was Ed White of America less than a week later.

It was *Gemini 4* which took him and Jim McDivitt into orbit for USA's first spacewalk. With its success, longer and longer flights and walks were scheduled, and the suits were continually developed to grant





maximum ease for extensive periods of time, as well as safety. These suits had three outer strengthening layers, with an aluminium heat-insulating layer between, and they guarded the astronauts against decompression, heat, cold, radiation and the one-in-a-million chance of being struck by a micrometeorite.

DRESSED FOR THE MOON

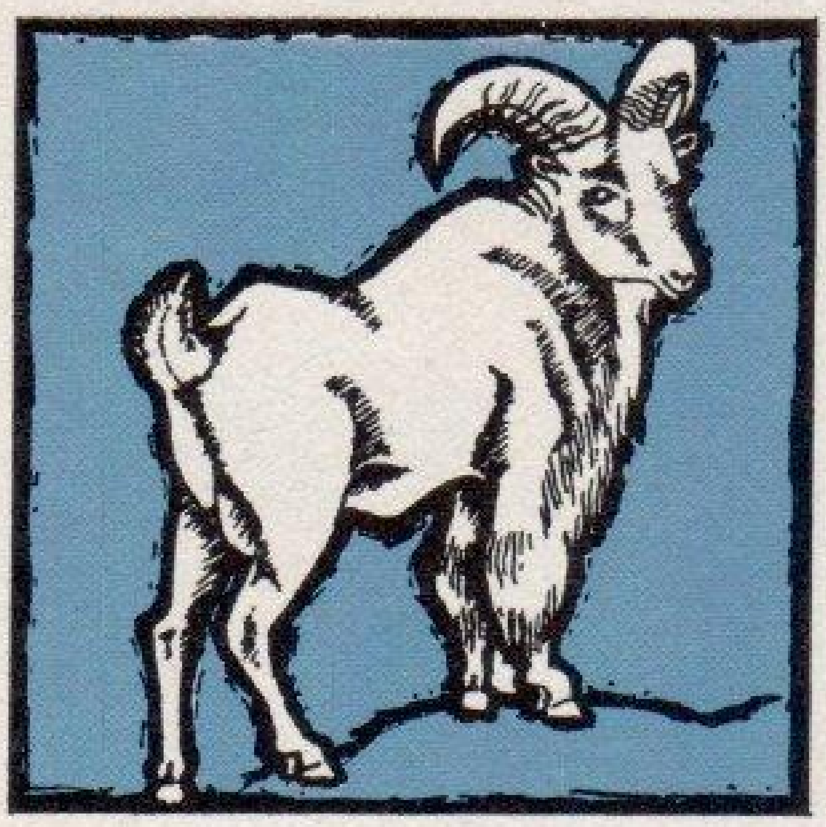
The *Gemini* programme was intended to show whether a moonflight was technically, and medically, possible. With a positive answer, the path was clear for the famous *Apollo* series, in which Neil Armstrong became the first man to step on the moon—in a suit which reputedly cost about two million dollars. Even that was cheap at the price, though, for the moon is a deadly place to man.

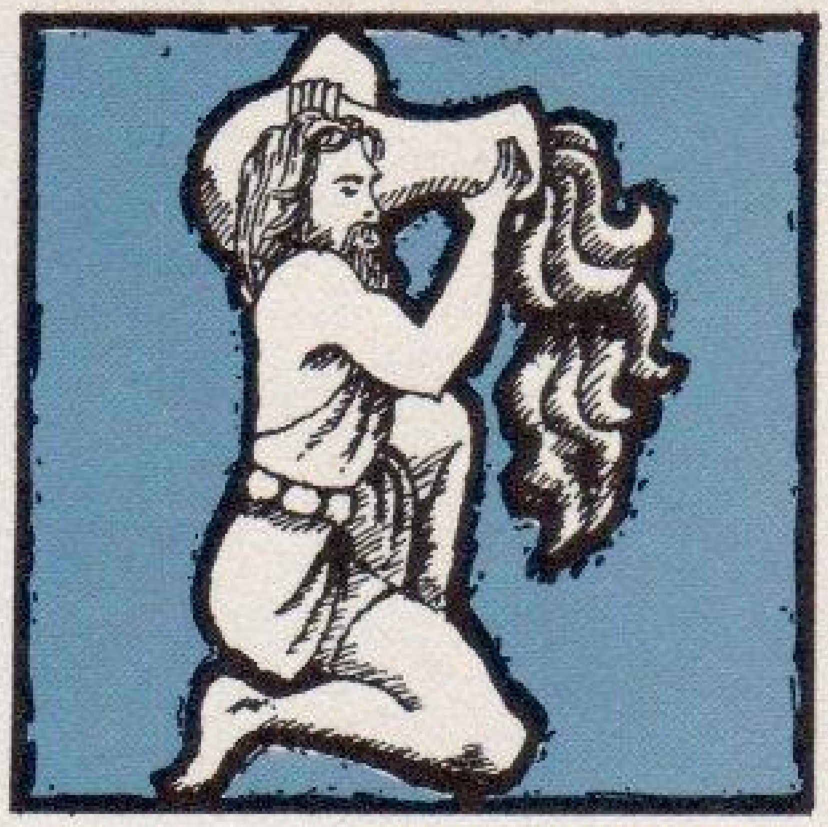
Because there is not any atmosphere to provide an insulating 'greenhouse', temperatures vary between +100°C and −150°C in the early morning! This lack of atmosphere similarly permits the full blast of the sun's radiation and a shower of micrometeorites to rain straight at the surface. The suit had to protect the astronaut against all this, and include an effective breathing system, while still allowing the wearer freedom to move about and handle tools and equipment with precision.

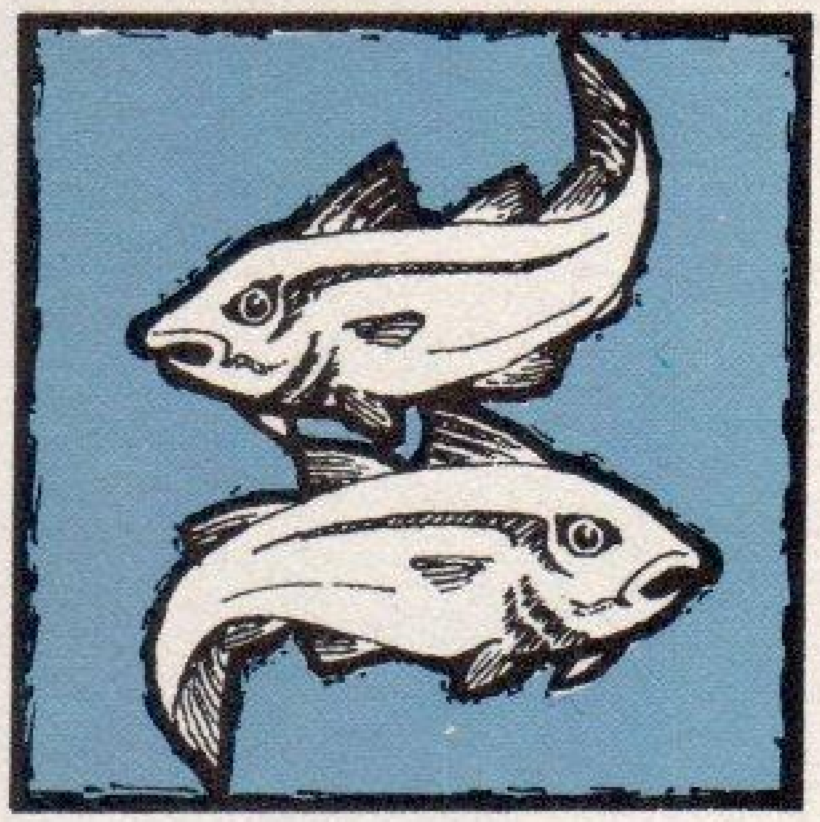
The successful *Apollo* suit was subjected to much development during its career, and the *Apollo 11* gear, for example, was in fact different from that used towards the end of the programme. The main advancement was the increased length of time the wearer could remain on the moon's surface, culminating in the long excursions made by Schmitt and Cernan in *Apollo 17*.

Working from the inside outwards, the heart of the suit was a liquid cooling garment, using water circulated through a maze of small pipes to take away the body's heat. Then there was the pressure suit itself enclosing the wearer, with the familiar 'goldfish bowl' helmet. The third, outer garment, which was responsible for the snowman-like appearance of the suit, was the multi-layered overall, designed to protect against the extreme temperatures, being struck by micrometeorites and any injury to the vitally important pressure suit itself. Pressure gloves were worn, and lunar overshoes which consisted of twenty-five layers of aluminium film and cloth sewn to a thick silicon rubber sole.

To supply the necessary oxygen for breathing, suit pressurisation, etc, the explorer carried on his back a glass fibre container. The pack also contained radio equipment and other complicated gadgets to transmit to earth signals showing how the wearer was reacting. It is tribute to the ingenious design of the suit that a man could handle all these instruments, as he walked about and kicked rocks down hills. Just as the scientists who developed the actual spacecrafts must be the top of their profession, the team who thought out the full pressure suit must be the cleverest 'dress designers' in the world!







Stories in the Stars

High in the heavens are the twelve signs of the zodiac, starry constellations which, if looked at closely and with a little imagination, look like people or objects. All of these have interesting stories about them.

The Winter Signs

In classical mythology the god Pan became greatly afraid of mighty Typhon who had a hundred heads, each with a terrible voice, and so he changed himself into a goat and was taken to the heavens for safety by Jupiter who set him amongst the stars as the zodiac sign Capricorn.

Ganymede, or Aquarius the water-carrier, was another who was set in the heavens by the gods as a constellation. Ganymede was the cup-bearer of Zeus and was admired by all the gods and goddesses on Mount Olympus because of his great beauty.

The final winter constellation is that of Pisces, the fishes, which swim happily in the midnight sky.

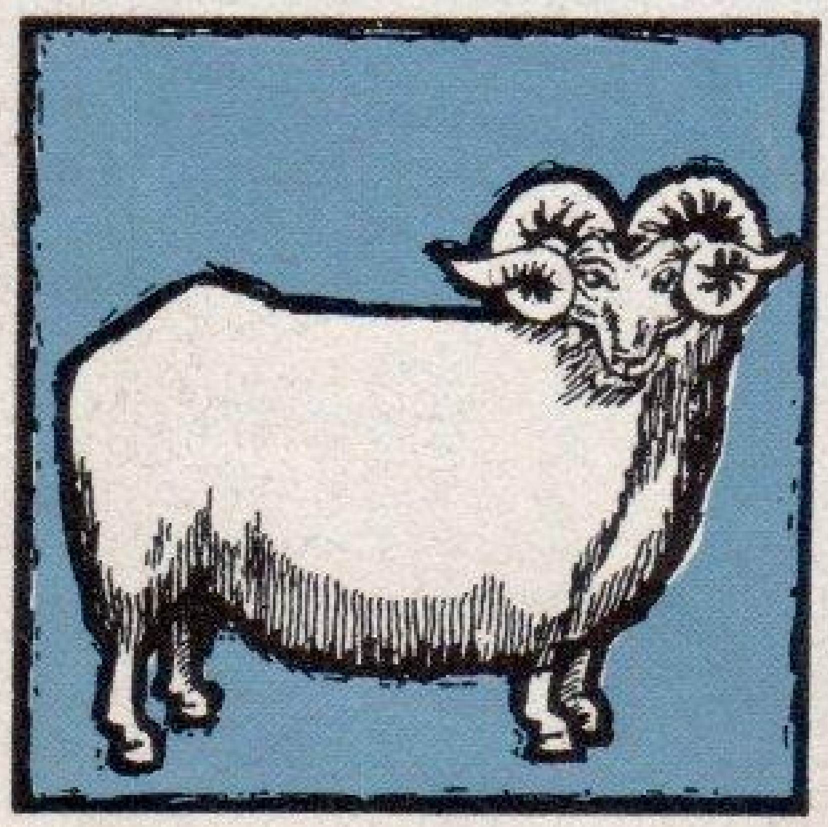
The Spring Signs

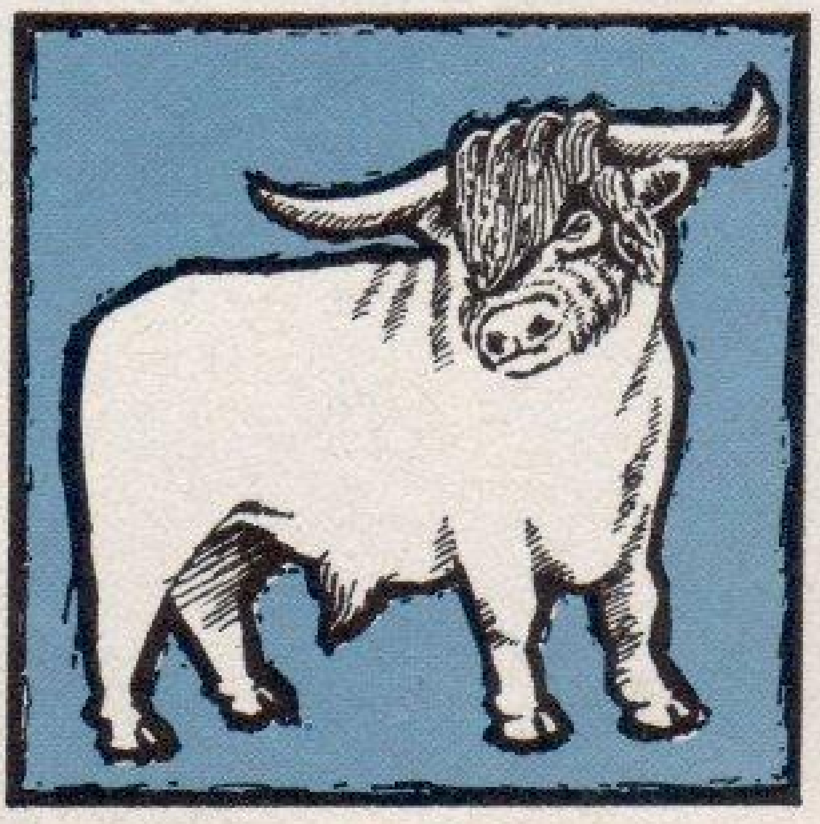
Aries was the ram which bore Phrixus and Helle on its back through the sky and whose golden fleece Jason and the argonauts sought. Legend has it that this ram was sacrificed finally to the great god Zeus who set it in the heavens as a new constellation.

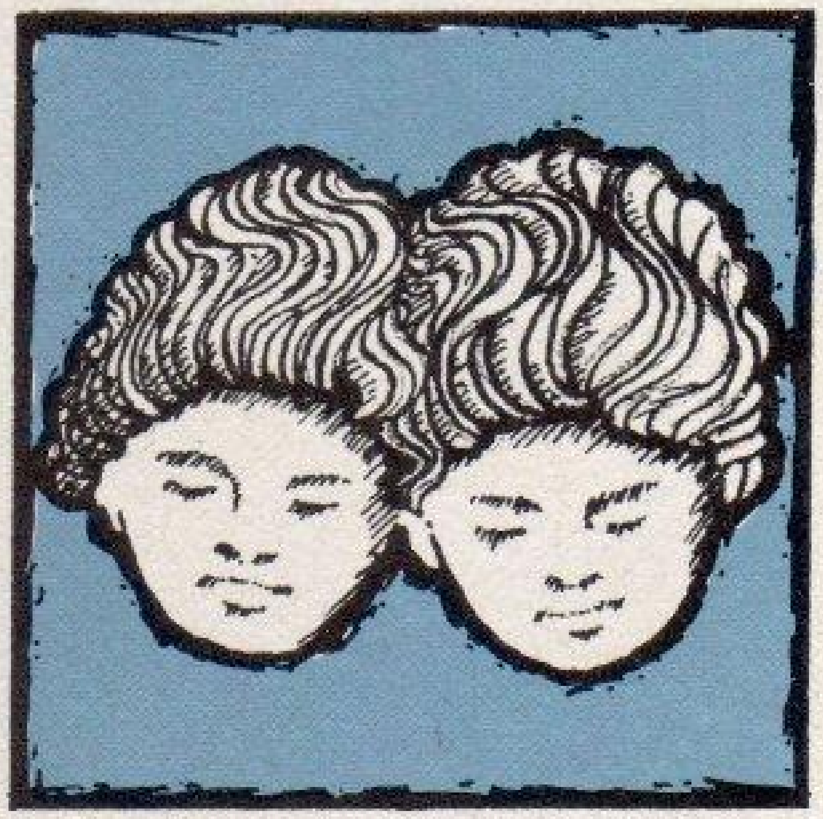
In Greek mythology, Taurus the bull is a disguise of Zeus who changed himself into a white bull to be near the daughter of the king of Phoenicia with whom he had fallen in love. Europa, the maiden, decided to go for a ride on this magnificent beast, and when she sat upon his back, the bull swam across to Crete with her. Here Zeus reappeared as his godly self, and he wooed and married the king's daughter.

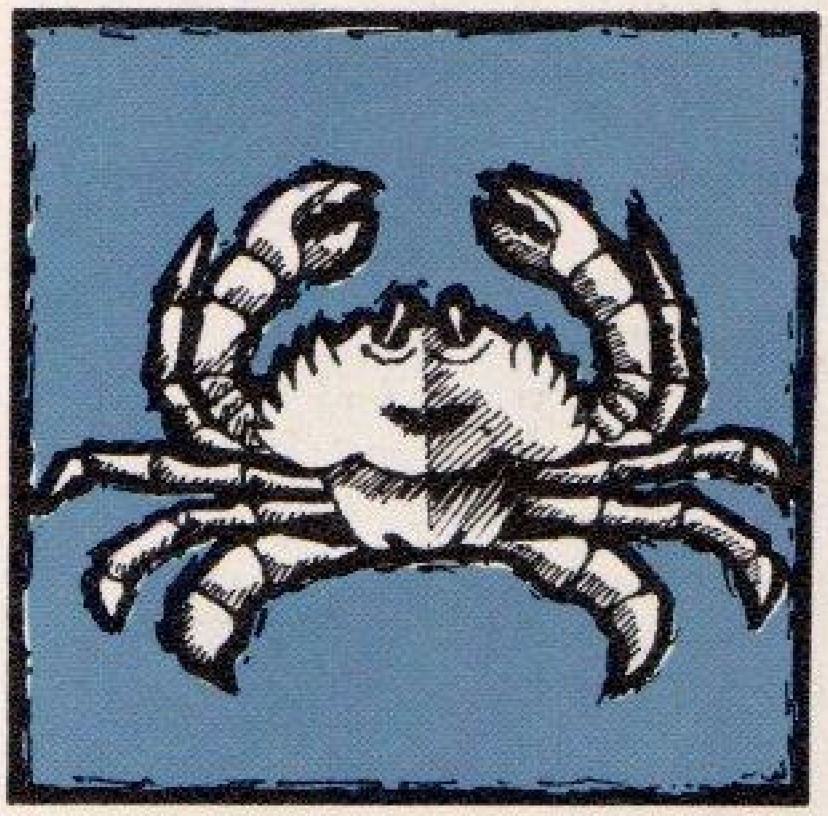
The constellation of Taurus includes the bright Pleides which form the bull's shoulder, the Hyades star cluster which forms its face, and the reddish star known as Aldebran which forms the right eye of the animal.

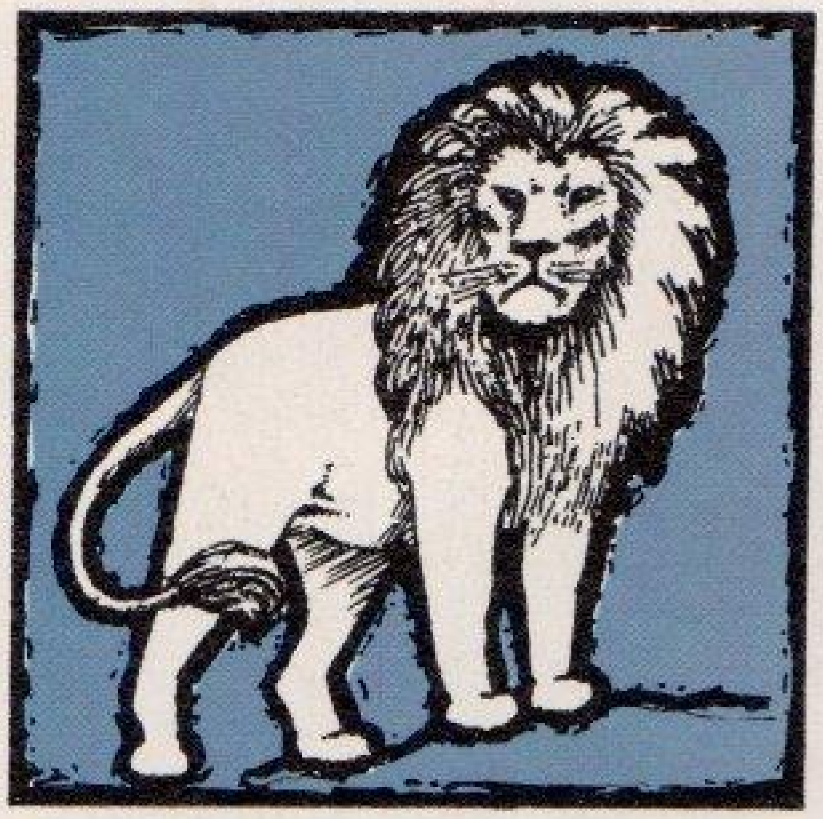
Also high in the heavens are the Gemini twins, Castor and Pollux, the sons of Jupiter and Leda. They sailed with Jason in search of the golden fleece and

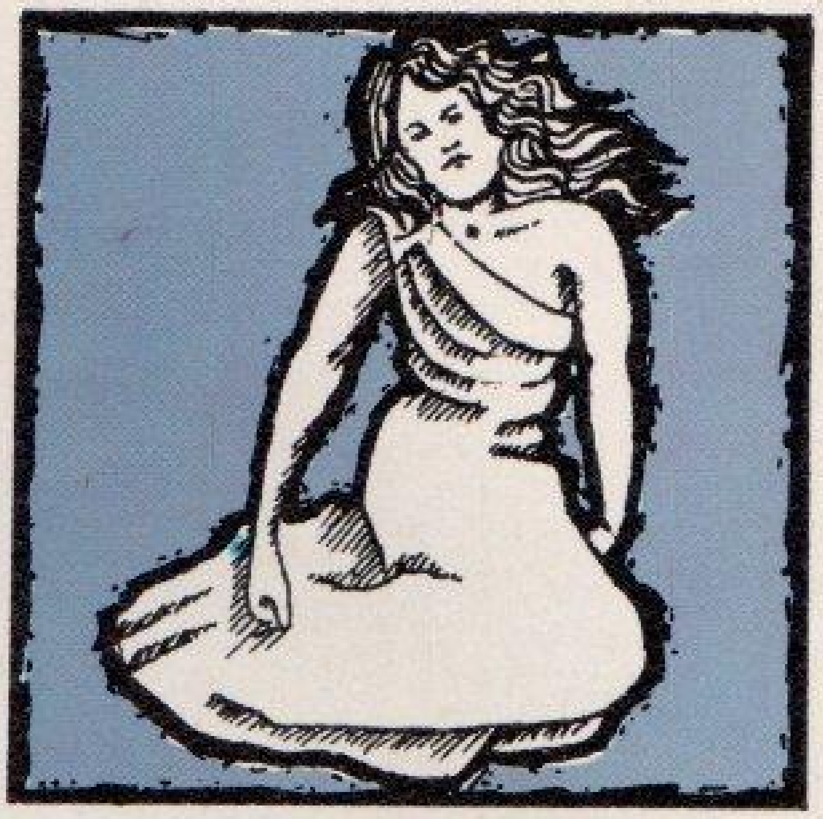












sailors give their names to the balls of fire which sometimes play around the masthead of a ship during a storm, believing that this fire 'Gemini' heralds the end of the storm.

The Summer Signs

When Hercules went to fight the hydra as one of his many tasks, Juno sent a crab to help this many-headed water-snake to overcome the mighty Hercules whom she hated because of his mother. Although the crab bit Hercules in the foot, the warrior killed it and finally vanquished the hydra with the help of his charioteer who cauterized the wound where Hercules cut off each head, so that another would not grow in its place. But Juno rewarded her crab's bravery in attacking Hercules by setting him up in the heavens as the constellation of Cancer.

Cancer lies in between Leo and the heavenly twins. Leo is the fifth sign of the zodiac and one of the oldest constellations known to man. It is said to represent a lion and its brightest star Alpha Leonis or Regulus is seventy-five times as brilliant as the sun!

The constellation of Virgo, the maiden, tells the story of Erigone who killed herself on discovering that her father, for whom she was searching, had been murdered by peasants who thought his homemade wine had poisoned them. She was led to her father's grave by his dog Moera who with Icarius, her father, appear in the sky near Virgo. They are known as Boötes, and the Procyon star.

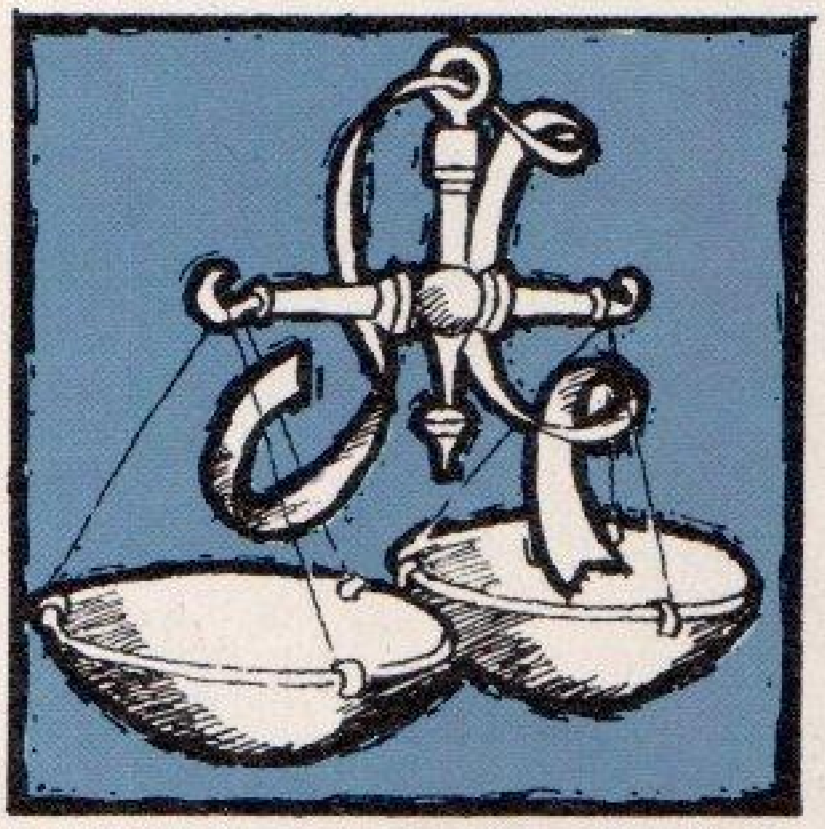
The Autumn Signs

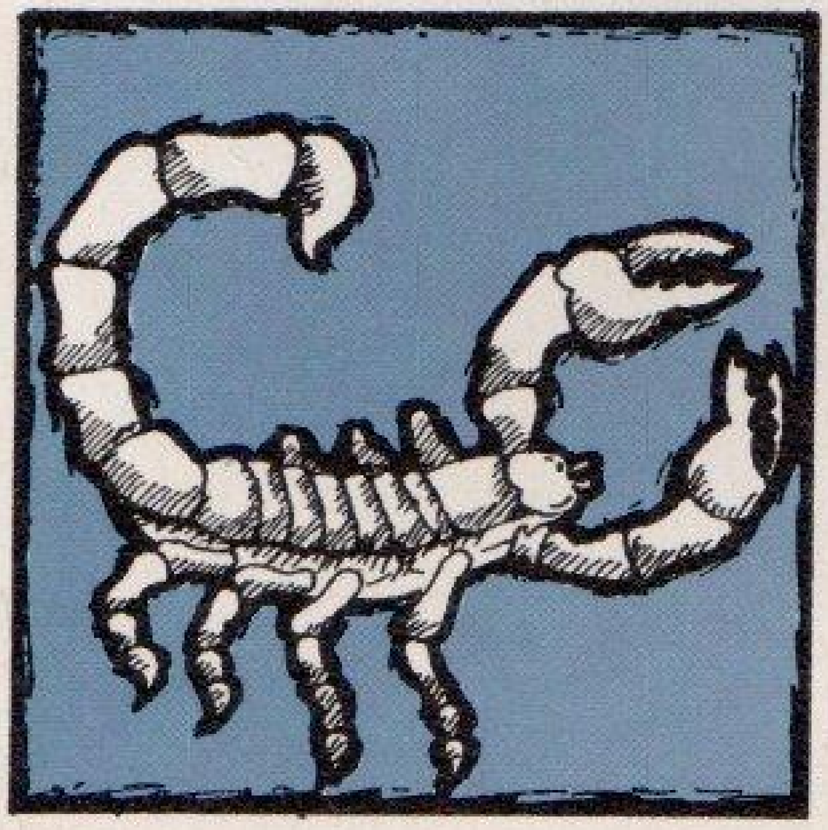
Libra, the constellation represented by a balance or a pair of scales, is the first of the autumn zodiac signs, and it is the only sign of the zodiac which does not represent a living thing. There is a legend in Persia that on the last day of judgement a large pair of scales will appear in the sky and each person's good and bad deeds will be weighed in the balance. Each person would then be rewarded suitably, according to whether the good outweighed the bad or not.

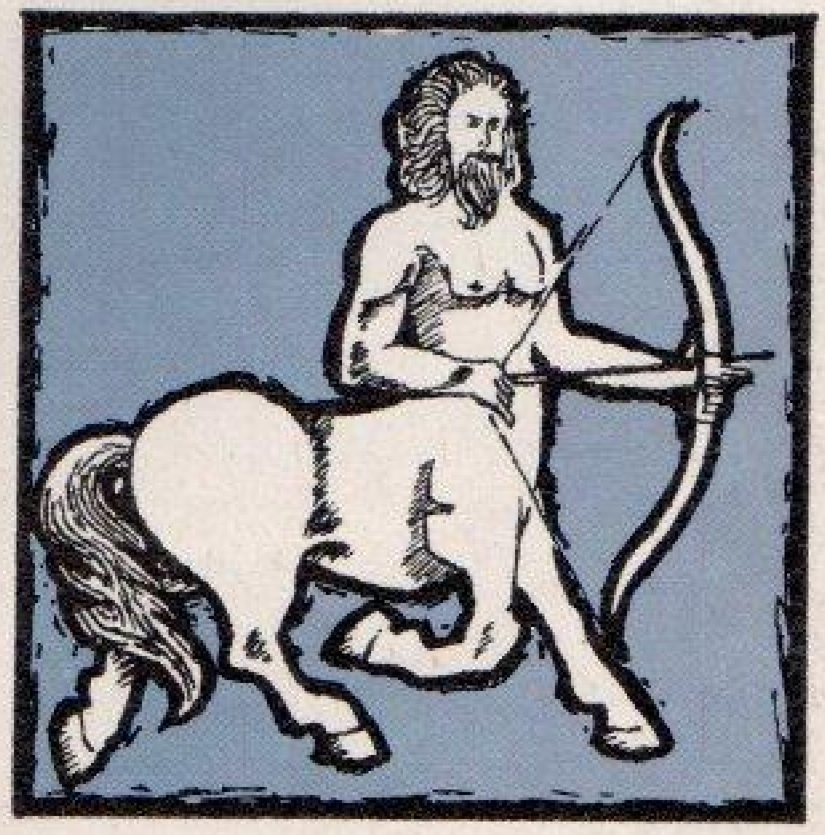
Orion was a mighty hunter whose vanity and boastfulness about his hunting skill angered the gods. When Orion said that he could kill any animal on earth, Jupiter sent down a scorpion which stung Orion to death. Later the scorpion became a constellation of stars, the eighth sign of the zodiac, Scorpio.

Orion too, was taken up to the sky, and he can be seen high in the heavens with his belt and sword and his dogs around him.

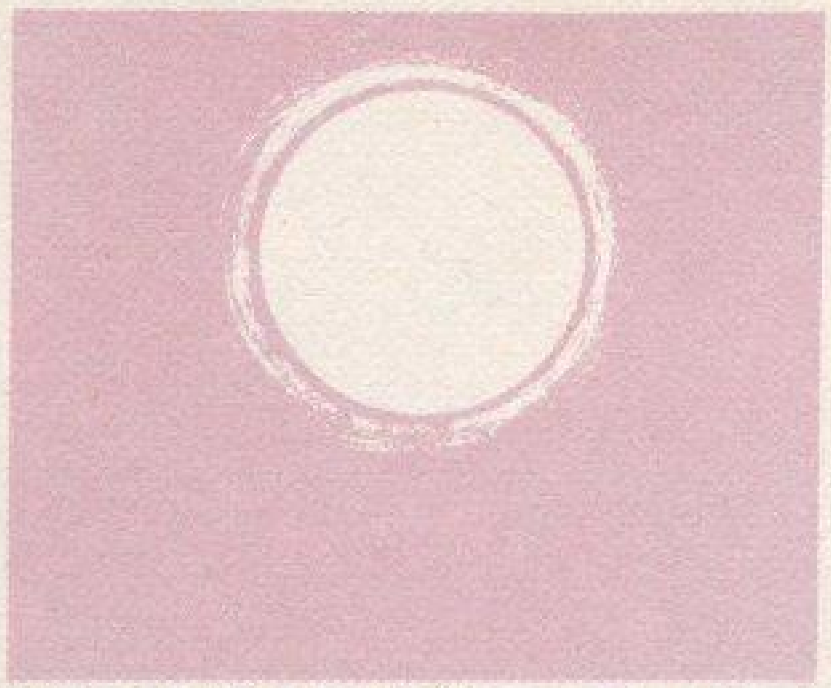
Finally, the constellation known as Sagittarius represents the centaur archer who taught Achilles and others music, hunting and medicine, and for his goodness in sharing his skills Chiron was rewarded by Jupiter by being taken up to the stars as the ninth sign of the zodiac.



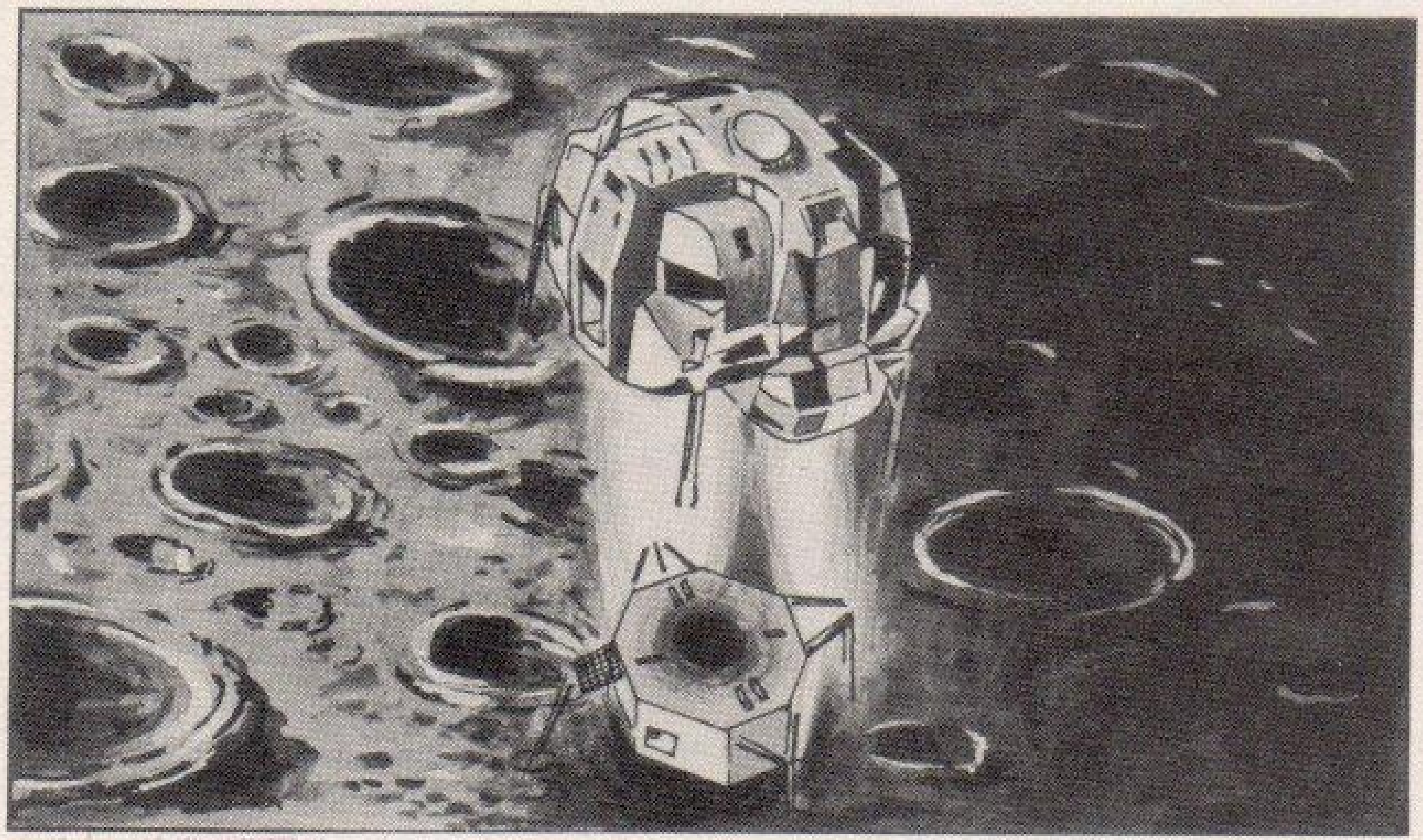


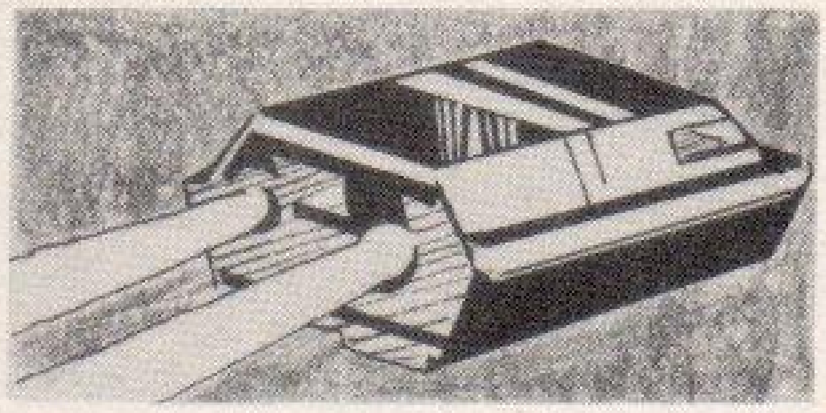


IT'S A FACT!



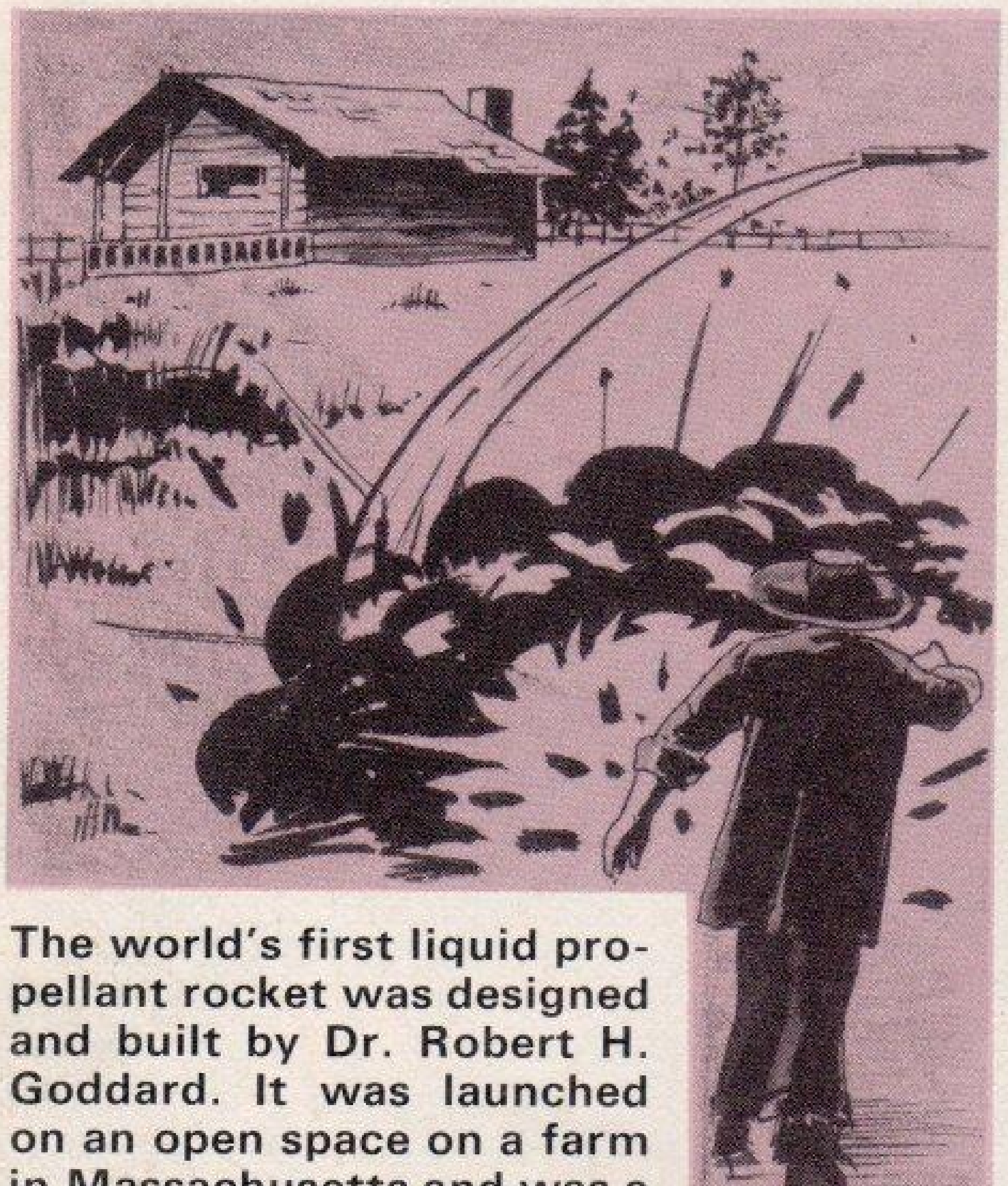
The sun's radiation rate, that is the amount of energy which it uses, is so great that it loses some 4 million tons in weight every second!



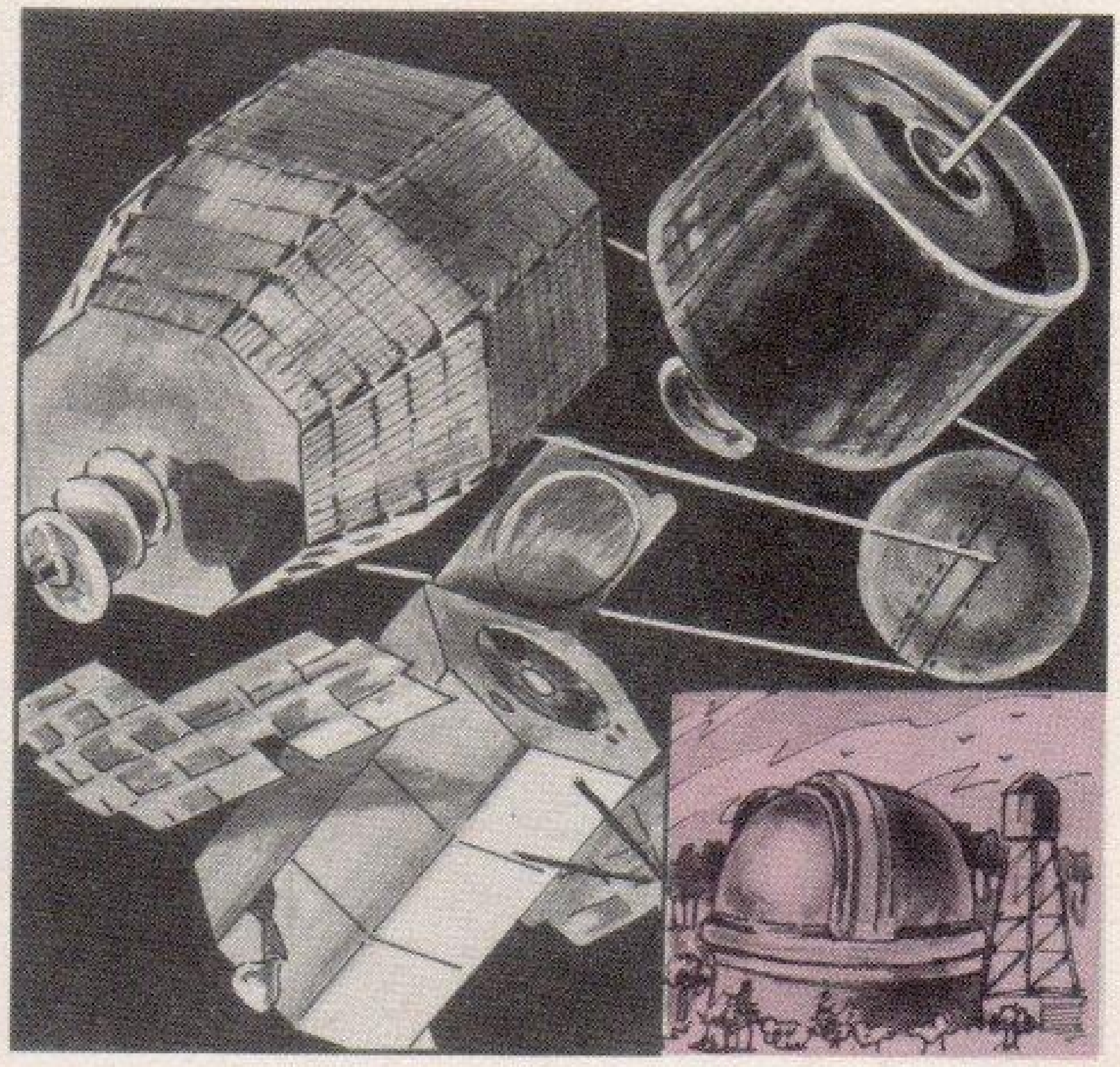


Who would have thought it? That strange strip fastening material, Velcro, began its life as the floor covering of the LEM, better known as the Moonbug, which took the astronauts on their final descent right on to the moon's surface. Velcro was used to prevent the practically weightless astronauts floating about inside the module during descent. Nowadays it's used just for fastening jackets and skirts!

One idea for powering spacecraft of the future is to use a laser beam, thus leaving the propulsion system on earth and leaving more room inside the craft. The laser would provide a 'wind' on which the spacecraft could sail towards its destination.

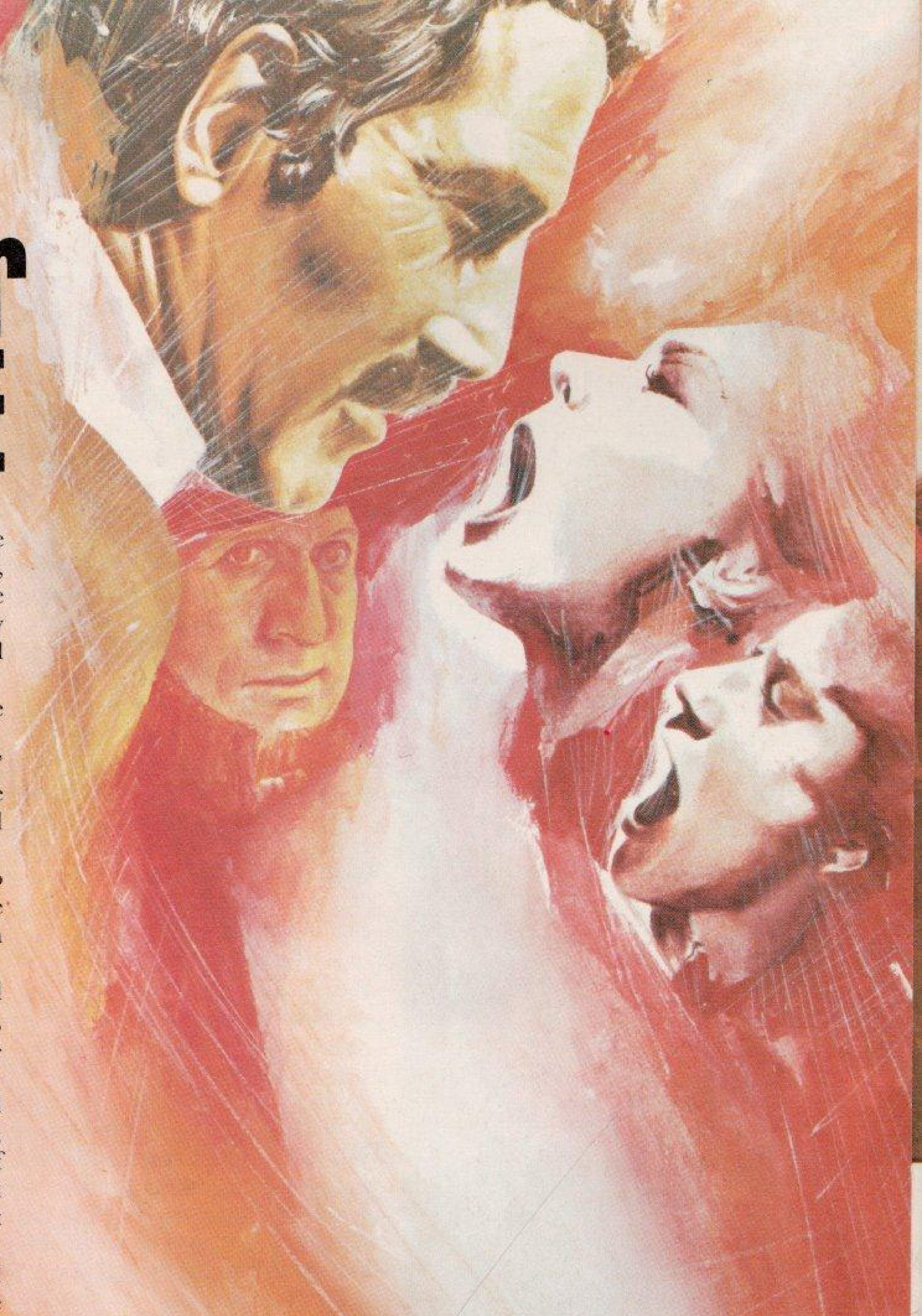


The world's first liquid propellant rocket was designed and built by Dr. Robert H. Goddard. It was launched on an open space on a farm in Massachusetts and was a simple structure of water piping!



Special cameras at tracking stations throughout the world can track satellites by photographing them against the starfield. They are extremely accurate and can spot the smallest of satellites—some are only six inches in diameter—at an altitude of over 2,400 miles.

The Sinister SPONGE



"What are they like?"

"Like?" answered the Doctor in an off-hand manner, "marvellous creatures! They're like all Inscrutes – perfectly normal." He fussed over a panel of dials.

"That's what you said about the Spectrons."

"And they had seven ears!" Harry walked over to stand beside Sarah. The Doctor continued fussing until a screen lit up.

"The atmosphere on Spectro nullifies sound waves. It would be abnormal if they had less than seven ears – Ah!"

He looked up at the screen and saw a beautiful valley full of large, richly coloured plants, some growing to heights of twenty feet.

"The old place hasn't changed much," he muttered to himself, half-smiling at the memory of the last time he had been on Inscruta. "Come on! Let's go out and meet the people!"

Outside, the air was fresh and cool, and a haunting fragrance made the three of them stop and just stand there breathing deeply.

"That smell!" cried Sarah. "It's like . . . like . . ."

The Doctor laughed. "It does seem familiar, doesn't it? I have spent many pleasant evenings trying to place it. At first I thought I recognised it, but I can assure you that the smell of this planet is unique, and only one of the many wonders of Inscruta."

"Like that funny coloured cloud over there?" asked Harry, pointing.

A small greeny yellow cloud had appeared at the rim of the valley and seemed to be moving towards them.

"That's funny," mused the Doctor, "its movement is anything but nebular."

The cloud was coming towards them. It skirted past mushrooms eight foot high, brushed aside tentacles reaching out from the gaping mouth of a huge red flower and finally stopped silently still, hovering in the air some ten yards away from them.

"That's no cloud," said Harry. "It's more like a . . . a sponge!" said Sarah, backing away as the sponge hovered closer to her.

The sponge moved closer and closer to Sarah until she put out a hand as if to push it away. At once the sponge changed shape and wrapped itself around her. She cried out and then all was quiet. The sponge sped off back the way it came shivering violently as Sarah tried to fight her way free of the folds that enveloped her.

Doctor Who and Harry gave

chase. As they rushed through the foliage the Doctor's mind was working overtime. The only other sponge-creatures he knew that could fly came from Femizor – but that was more than six billion light years away! In his haste he failed to notice the long sticky tentacle that snaked out and wrapped itself round his feet.

He fell heavily and his involuntary cry made Harry whirl round. The young medical officer saw Doctor Who struggling to free himself from the tentacle that was slowly dragging him towards the mouth of a hungry-looking plant.

As Harry raced to help the Doctor a second tentacle leapt from the flower like a chameleon's tongue and wrapped itself round Harry's neck. Wriggling and cursing, the two men were drawn into the middle of the flower and could only watch helplessly as the huge red petals closed around them.

Bathed in a dim red glow, the two men felt the grip of the tentacles grow tighter. What little light that filtered through the translucent petals showed a network of small veins carrying a colourless fluid round the entire plant. A quiet, insistent hissing noise made them look down and the smell of burning rubber rose from their feet.

Acid! The plant was beginning to digest them. The Doctor told Harry to light a match and hold it against the tentacle that was gradually wringing the life from him. He did so but in a reflex action the tentacle tightened its grip round his neck.

Harry dropped the match.

Soon the acid would burn through their shoes and start on their feet.

"Land of hope and glory! Mother of the free! How can we extoooll thee-" Doctor Who began to sing loudly, and Harry gurgled with surprise.

"Come on, Harry, louder!" urged the Doctor. "Sing! Shout! Anything – but make it loud!"

The two men stood in the confined space of the flower, singing and shouting for all they were worth. The tentacles relaxed and seemed to shrink from them. They began yelling and screaming and the walls of their prison shifted, letting in a thin ray of light. The Doctor grabbed both sides of the wall and pushed, howling as though his lungs were about to burst.

Unable to contain the terrible noise, the flower opened completely and they were able to scramble out. They threw off their shoes and sat panting against a tree, out of range of the plant's deadly tentacles.

"Noise!" whispered the Doctor in explanation. "It frightens anything not used to it!"

"So does a man-eating plant."

Harry and the Doctor trod carefully in the direction the sponge had gone. There was no sign of it. The Doctor looked worried. If only he could find Elkalor, the Inscrute leader who had befriended him on his previous visit.

As they entered a field of what looked like giant cabbages Harry shivered. It was getting cold. The sun was going down and it would soon be completely dark on the moonless planet. Who could tell what dangers the night held?

As they passed a particularly large cabbage the Doctor gave a startled gasp. The rim of a leaf was wobbling and a large head peeped over the top.

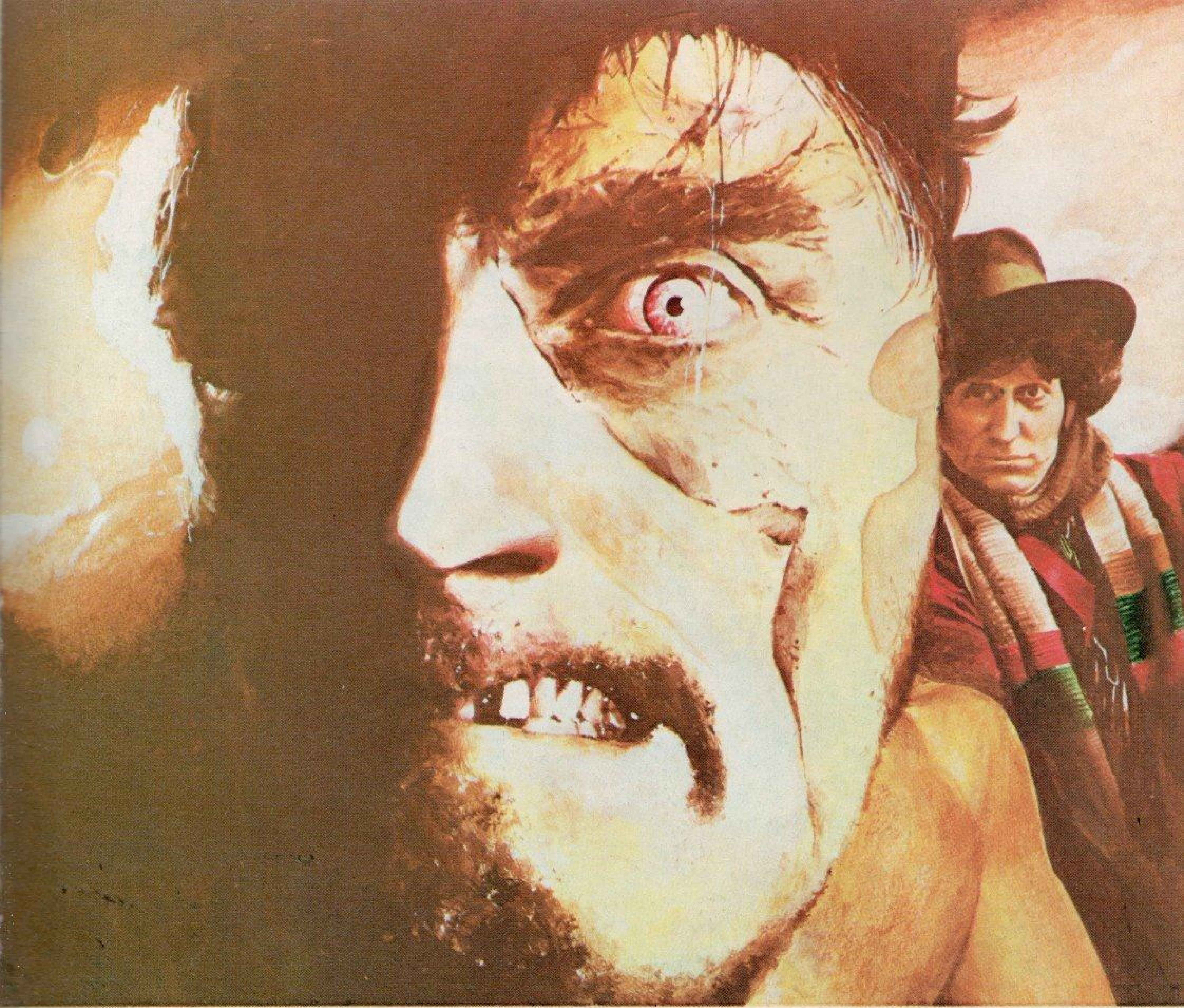
"Elkalor!"

The head ducked down, then slowly reappeared.

"Doctor! Come quickly! Before the sun sets!" Elkalor's voice was a loud whisper.

The Doctor and Harry went over to the cabbage.

"Here, grab this!" Elkalor threw a vine down for them to climb up.



They climbed to the rim of the outside leaf and Elkalor pulled them down between the leaves to the heart, where, inside a box-like framework, there was a table and a lamp.

"These will keep the leaves from crushing us when the sun goes down," Elkalor patted one of the beams that made up the frame.

"Stuck inside a cabbage!" Harry smiled bewilderedly.

"When it grows dark the leaves close up and we will be safe here," whispered Elkalor. "It's not very spacious but . . . Doctor?"

The Doctor didn't answer immediately. He was staring at Elkalor in amazement. Harry coughed and Doctor Who seemed to come to life.

"Elkalor! What's happened to you?"

Elkalor stood there, trembling slightly. He was taller than the Doctor and thinner. His face had no chin and his neck went straight up to his beak-like nose. His eyes were set wide apart and long thin tendrils stood up on the top of his head. But what amazed the Doctor was his flesh. It was almost transparent and every time he made a sudden movement he shivered like a jelly!

Elkalor held up a hand and winced, as if the Doctor's question pained him.

"Please, Doctor," he whispered, "our resistance to sound is very low. I would appreciate it if you would communicate by the Galactic Federation Sign Language A 17 section 4."

"Section 4 . . ." whispered the Doctor with his hand on his chin. "Sorry, Elkalor, but I'm blowed if I can remember it. Or any of the other sections to tell you the truth. Never thought I'd need 'em on Inscruta."

"Then a whisper will suffice. You will remember from your last visit how abnormally sensitive to sound all life on this planet is, and this is the heart of our problem.

"Five Ergaps after you left, all the males were stricken by a disease that caused our feathers to fall out and our flesh to become transparent. No one could discover a reason for it or a cure."

The lamp on the table flickered and Elkalor paused to adjust the flame.

"It was around this time that our wives and daughters began to harrass us, began to question our judgement and authority. They would hold mass meetings in the council buildings and cause a great noise that was most distressing for us. While they seemed to get less and less sensitive to sound, we males could hardly bear to hear a pin drop.

"One of the males discovered that the women had been harbouring a giant sponge in the council hall and were communicating telepathically with it. When we objected to this they drove us from the city, with a ceaseless barrage of chattering and shouting and loud bangings. We have lived here in this patch ever since."

Elkalor shrugged. A beam creaked as the leathery cabbage leaves rustled closer together.

The Doctor looked thoughtful. Finally he spoke, but so softly he could barely be heard.

"Elkalor, I know that the tradition of Inscruta forbids you to accept help from any source, but I ask you, as one who has accepted your gracious hospitality, please let Harry and I assist you in what way we can."

Despite its tactful phrasing, the Doctor's plea was dismissed.

"It cannot be. Though they come every day to torment us with their noise, though our very bones are turning to jelly, I cannot entertain your kind offer. This affair does not concern you."

"But it does," whispered Harry, "and very directly."

The Doctor and Elkalor turned to face Harry who was holding up his hand in the light cast from the lamp on the table. They gasped. There was hardly any shadow cast on the leafy wall. Harry was becoming transparent!

When dawn came and the thick leaves of their warm cabbage home began to open to the sunlight, the Doctor and Harry were resolved as to their course of action.

Harry, who was already having trouble with anything but the faintest whisper, had cut a pair of leathery earmuffs out of the cabbage with his knife and was determined to be there when they confronted the females and their sponge.

Elkalor was resigned to the Doctor's interference, if only to help Harry.

As the sun rose slowly in the sky Doctor Who made a quick journey back to the Tardis, and the men from the neighbouring cabbages congregated in the middle of the patch, waiting for their wives and daughters to come and taunt them.

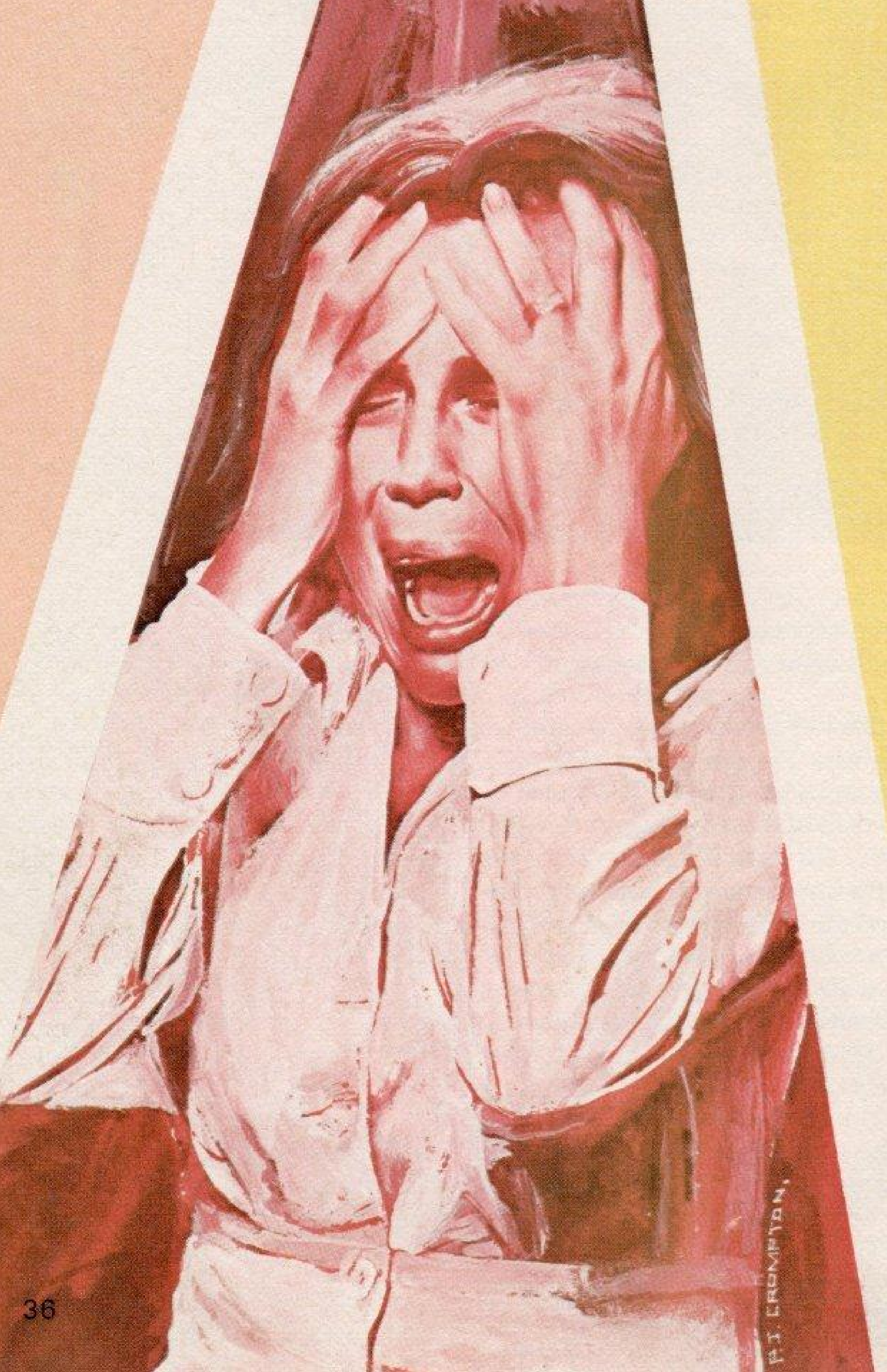
It was not long before a rattling and shouting could be heard getting nearer and nearer. The Inscrutes covered their hypersensitive ears with their hands and cringed.

The sponge hovered into view, flanked by female Inscrutes furiously bashing pots and pans and shouting.

Harry started. To the right of the sponge, her face contorted into a snarl, was Sarah.

The Doctor held up his hands and made a gobbling noise deep down in his throat. Immediately the females stopped their noise and looked around at each other. The Doctor made some more noises and then folded his arms.

The sponge made similar noises to the Doctor. It was obvious they were communicating in some way, but no one was sure what that way was. It wasn't telepathy, but it certainly wasn't talking.


P.J. CROMPTON.

In fact the Doctor and the sponge were using Femizonian Aurapathy, a means of communication known to very few outside Femizor, the gigantic sponge colony in Alpha Mardis 2. The Doctor knew how dangerous it would be to make direct telepathic contact with the sponge.

"What are you doing on this planet?" he asked.

"I am trying to build a transformer to get me back to Femizor."

"Why have you caused this friction between the Inscrutes?"

"It was unintentional. I was contaminated by Oriolic dust beams on my way here. This atmosphere causes a disintegrating effect on male hormones."

"Femizonian sponges are made up of equal numbers of male and female hormones. Have your own hormones been affected?"

"Questions! Questions!" gobbled the sponge, hovering menacingly close to the Doctor. "I think it is time you stopped!"

"And I think it is time you started telling the truth!" The Doctor dipped into his pocket and produced a mouse-like creature. The sponge shrank back with a high pitched sound.

"Yes," said the Doctor, smiling. "The enemy of sponges throughout the cosmos – a Rhoa. If you don't co-operate I will let him loose."

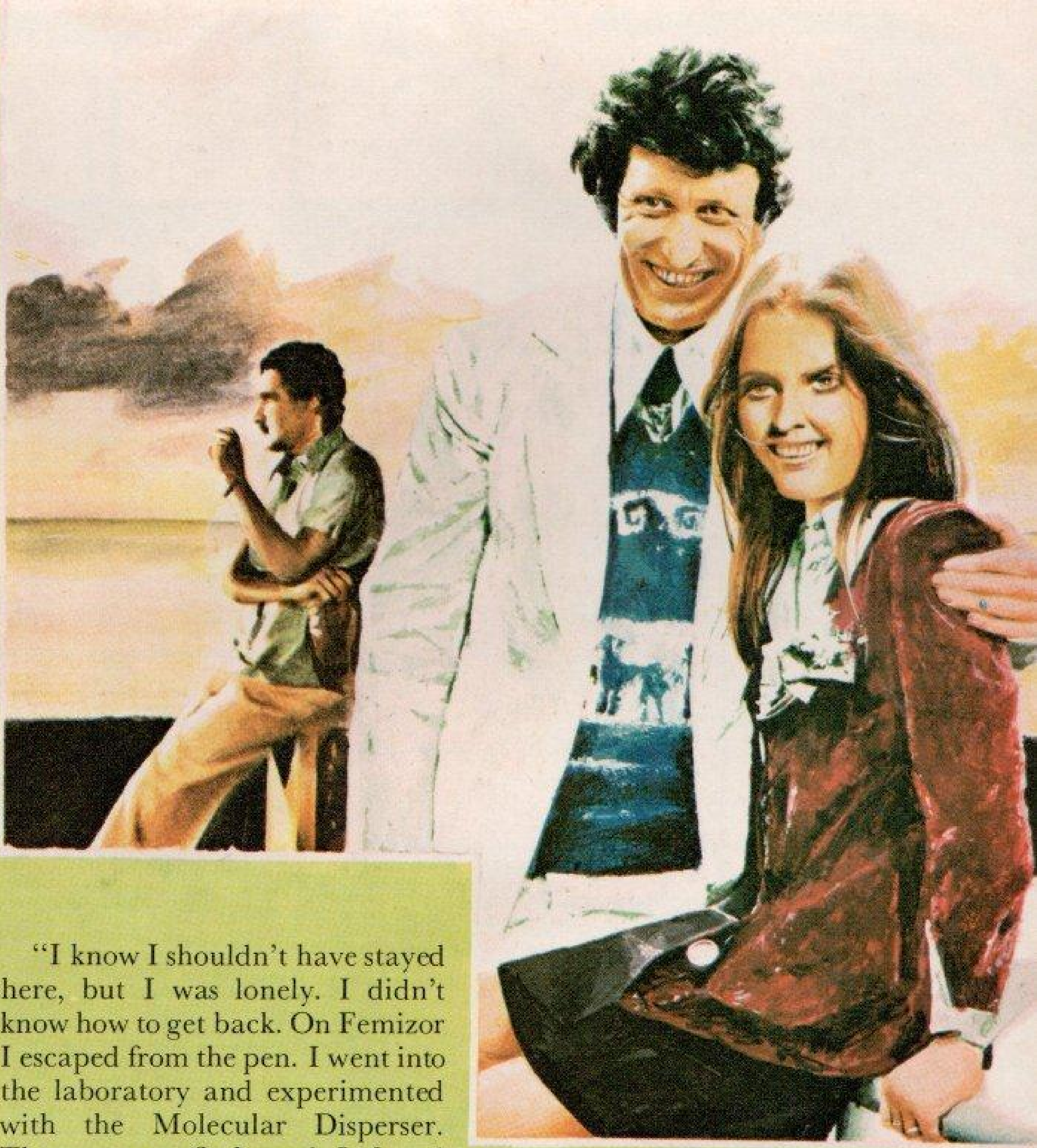
The sponge was quiet. The Doctor went on.

"I have visited Femizor twice in my travels and know something of the inhabitants. Young sponges are kept inside pens until they reach maturity, until they have learnt to sort out and organise the myriad responses and emotions they are born with. It is said that Femizonians are born mad and grow to sanity, but the truth is they are born amoral and oversensitive, and must learn which reflexes and thought patterns to discard and which ones to develop."

"So you know about us."

"Yes. I see by your size you have not reached maturity. How did you get here?"

The sponge pulsated in fits and starts, as if sobbing. Its gobbling was subdued.



"I know I shouldn't have stayed here, but I was lonely. I didn't know how to get back. On Femizor I escaped from the pen. I went into the laboratory and experimented with the Molecular Disperser. There was a flash and I found myself orbiting this planet. I came in contact with the dust beams on my way down. Inside, half of me was disintegrating. I felt alone. One side of me was lonely, the other side dying. I didn't know what to do. But now I see I was wrong. I . . . I . . . I'm sorry."

The doctor looked pleased. He put the Rhoa back in his pocket.

"You don't think Oriolic dust beam disintegration is incurable do you?" he laughed. "Why, the answer is right here!" He went over to a cabbage and patted a leaf. "The juice of this plant can be condensed into an elixir that reverses the disintegration process. And if you're worried about getting home you underestimate my powers of invention!"

The sponge freed the female Inscrutes from the telepathic domination, and at once they went to work brewing vast quantities of the elixir.

In a couple of days the Inscrutes feathers were growing again, Harry was perfectly solid, and Doctor Who had a Molecular Speed-beam pointing at Alpha Mardis 2.

"Once you get there it shouldn't be too difficult to reach Femizor," he gobbled reassuringly. "I think you're mature enough now to find your own way once you are well."

"Thank you, Doctor. I am sorry for what I have done and I hope everything here gets back to normal."

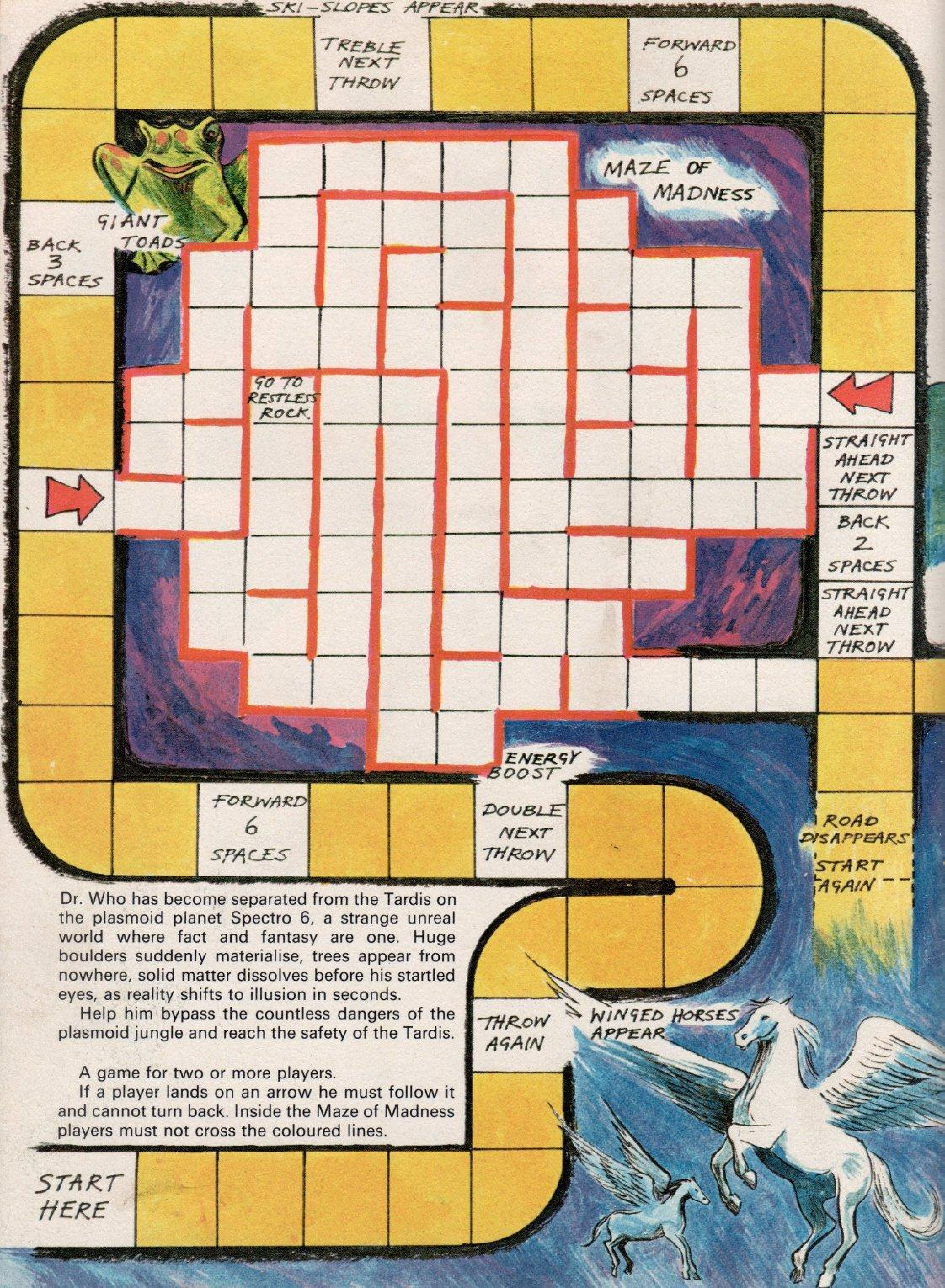
Harry watched as an Inscrute female forced another cupful of elixir down her husband's throat.

"Somehow I don't think things round here will ever be the same again," he muttered.

"And not such a bad thing either," Sarah chipped in.

"Now, now," admonished the Doctor, "I'm due for a little holiday here, and I don't want to spend it listening to you two arguing."

And with that he strode off towards the Lake of Sighs, where the fishing is said to be very good indeed.

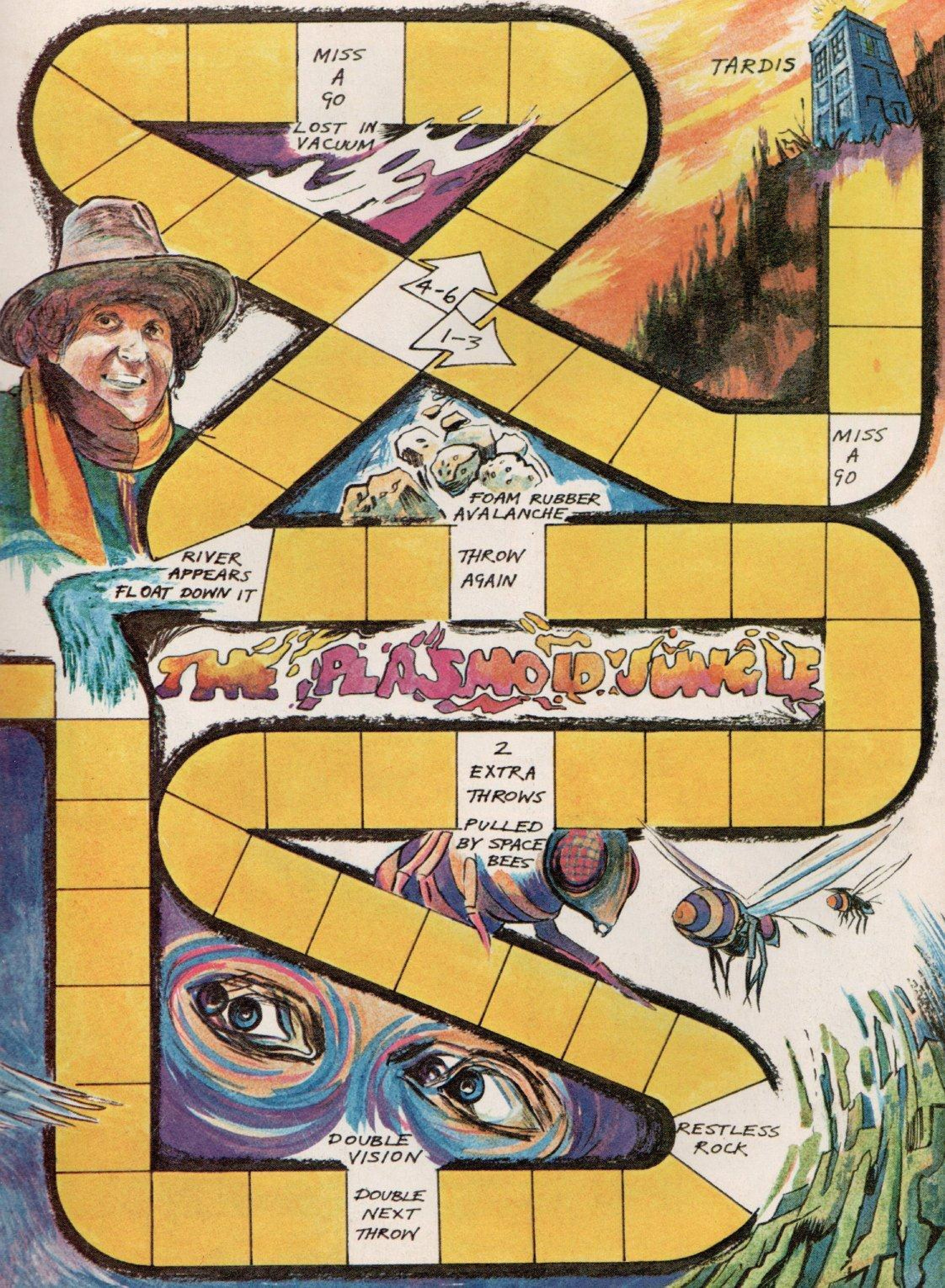

SKI-SLOPES APPEAR
TREBLE NEXT THROW
FORWARD 6 SPACES
MAZE OF MADNESS
GIANT TOADS
BACK 3 SPACES
GO TO RESTLESS ROCK
STRAIGHT AHEAD NEXT THROW
BACK 2 SPACES
STRAIGHT AHEAD NEXT THROW
ENERGY BOOST
FORWARD 6 SPACES
DOUBLE NEXT THROW
ROAD DISAPPEARS
START AGAIN
THROW AGAIN
WINGED HORSES APPEAR
START HERE

Dr. Who has become separated from the Tardis on the plasmoid planet Spectro 6, a strange unreal world where fact and fantasy are one. Huge boulders suddenly materialise, trees appear from nowhere, solid matter dissolves before his startled eyes, as reality shifts to illusion in seconds.

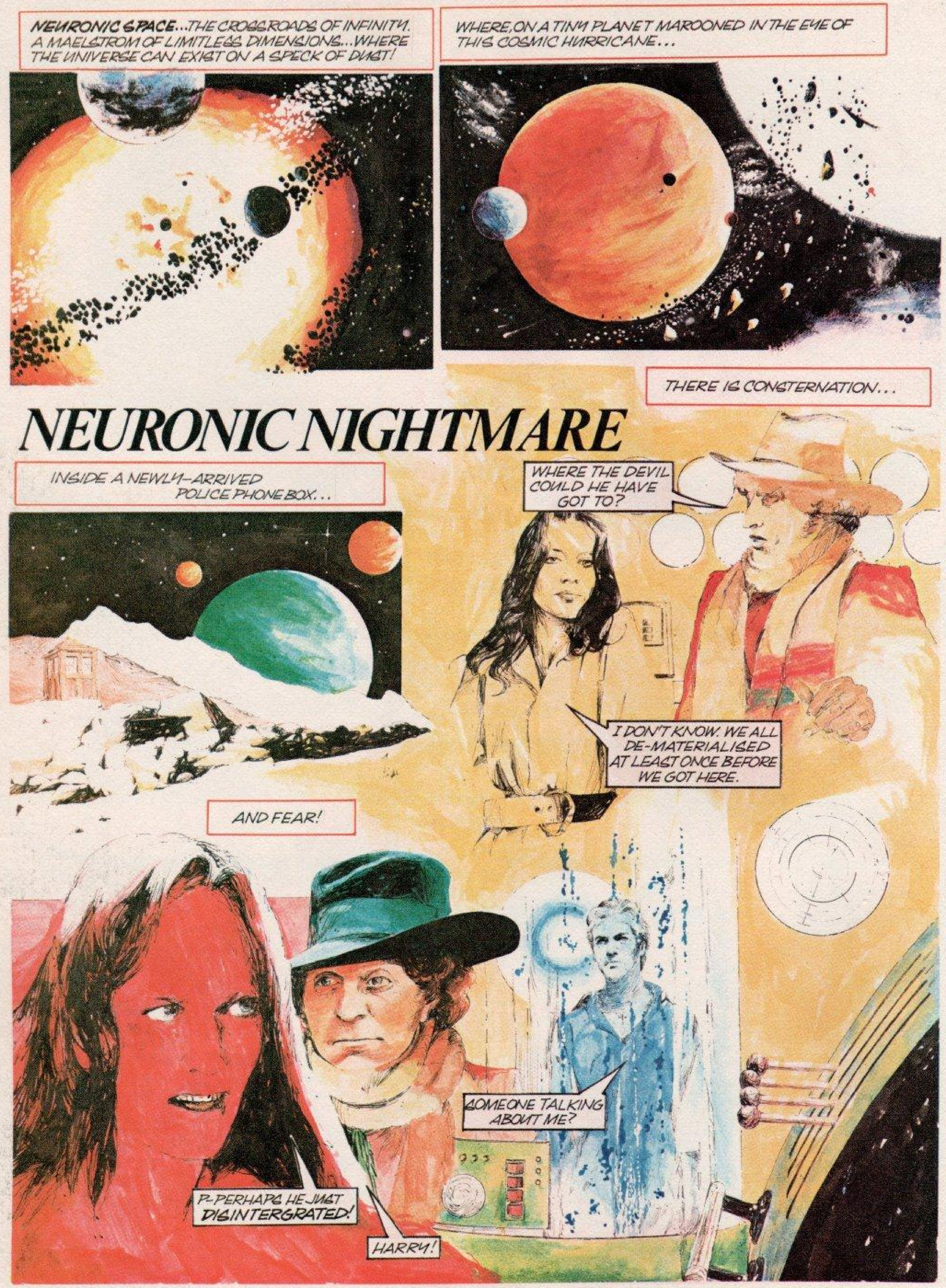
Help him bypass the countless dangers of the plasmoid jungle and reach the safety of the Tardis.

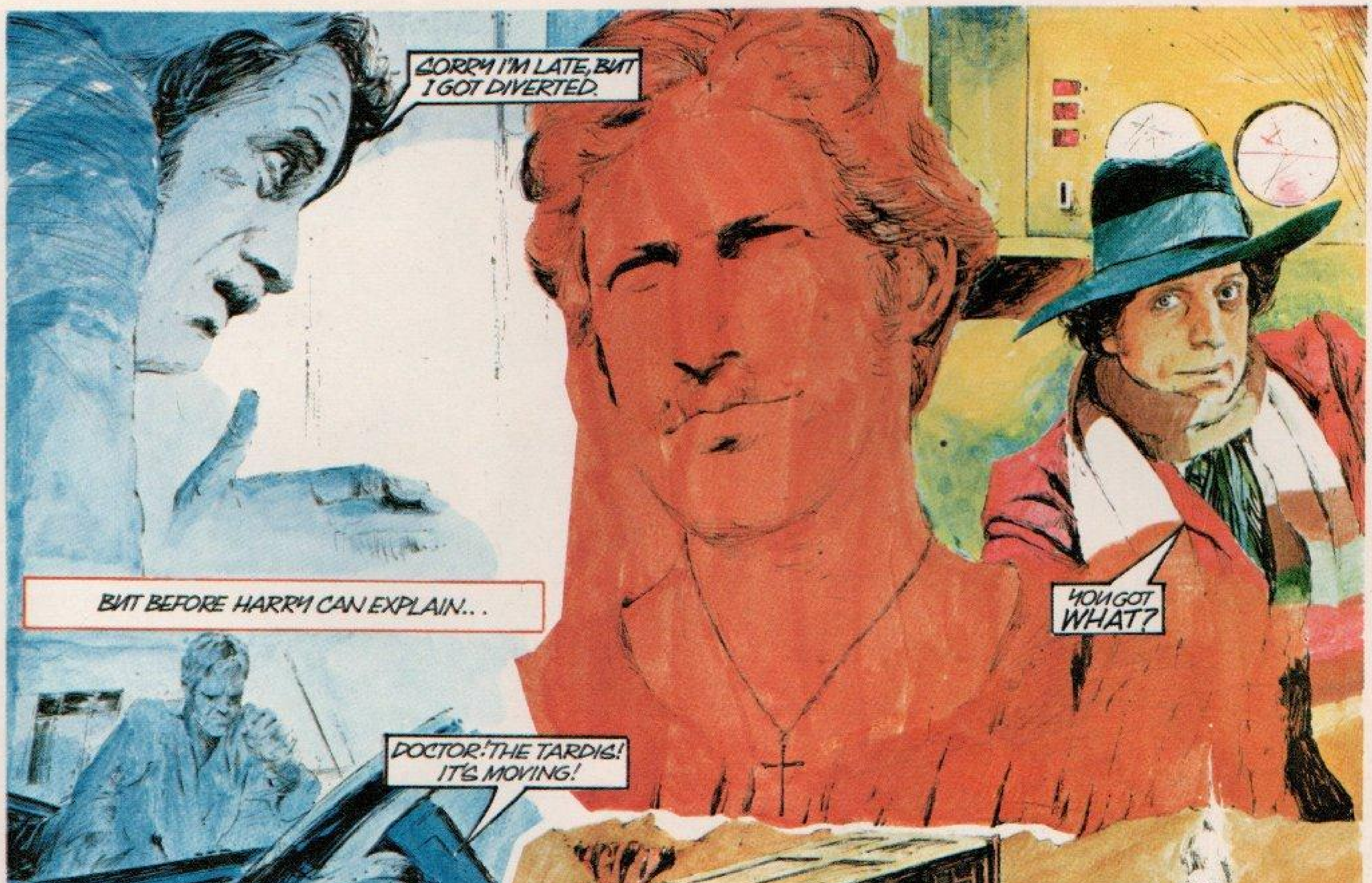
A game for two or more players.

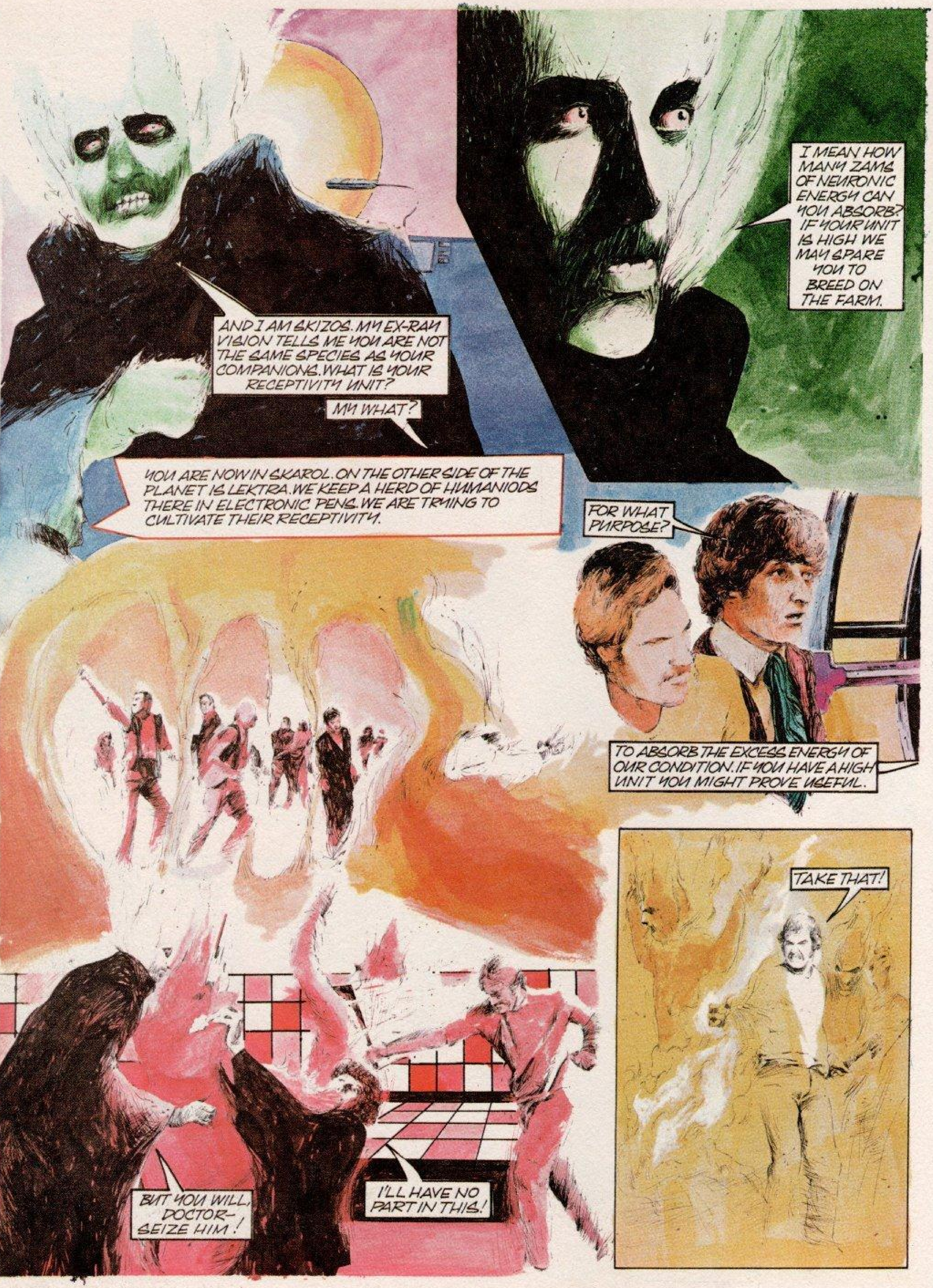
If a player lands on an arrow he must follow it and cannot turn back. Inside the Maze of Madness players must not cross the coloured lines.

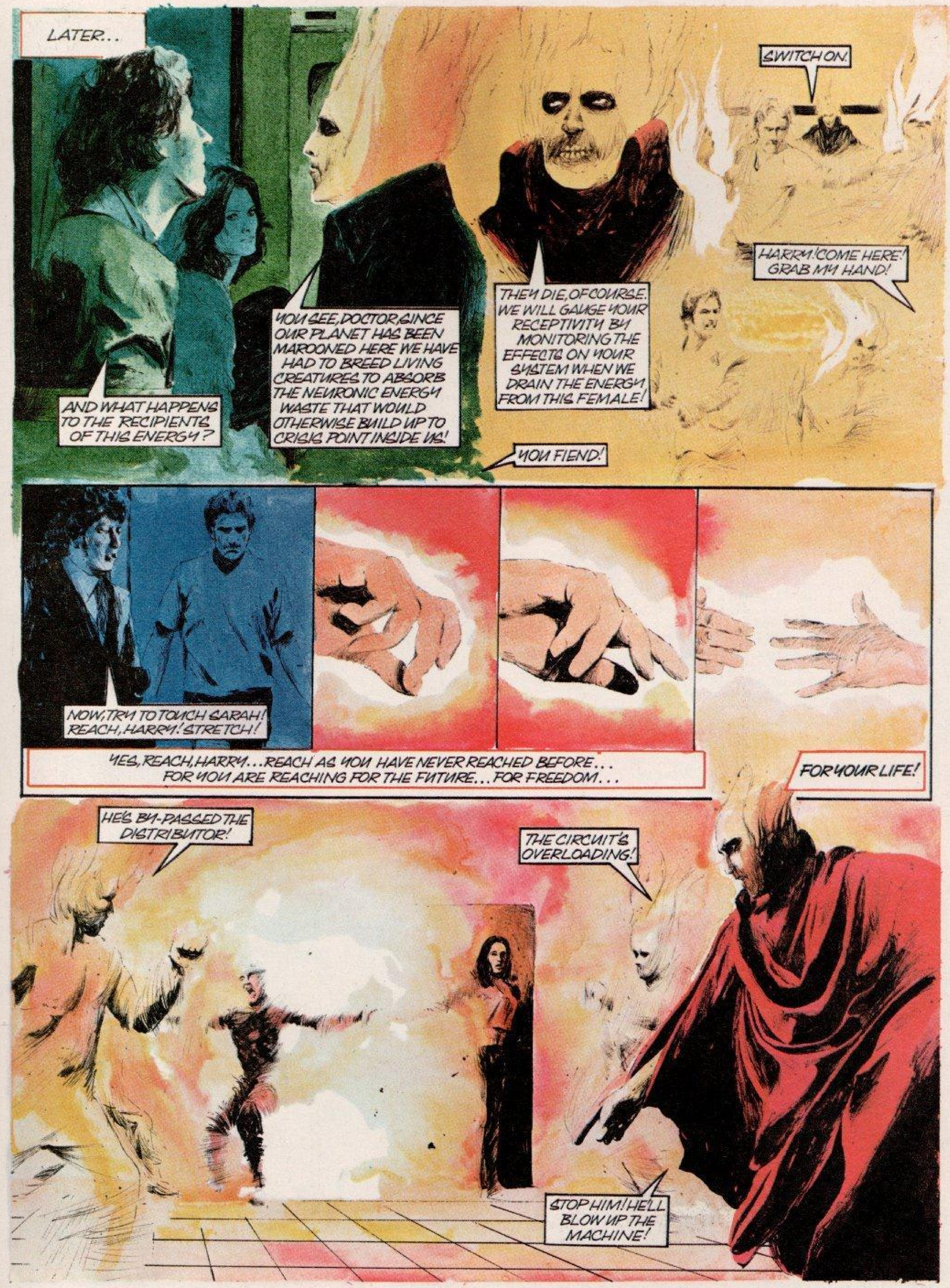

MISS A GO
LOST IN VACUUM
TARDIS
4-6
1-3
MISS A GO
FOAM RUBBER AVALANCHE
RIVER APPEARS FLOAT DOWN IT
THROW AGAIN
THE PLASMOID JUNGLE
2 EXTRA THROWS
PULLED BY SPACE BEES
DOUBLE VISION
RESTLESS ROCK
DOUBLE NEXT THROW

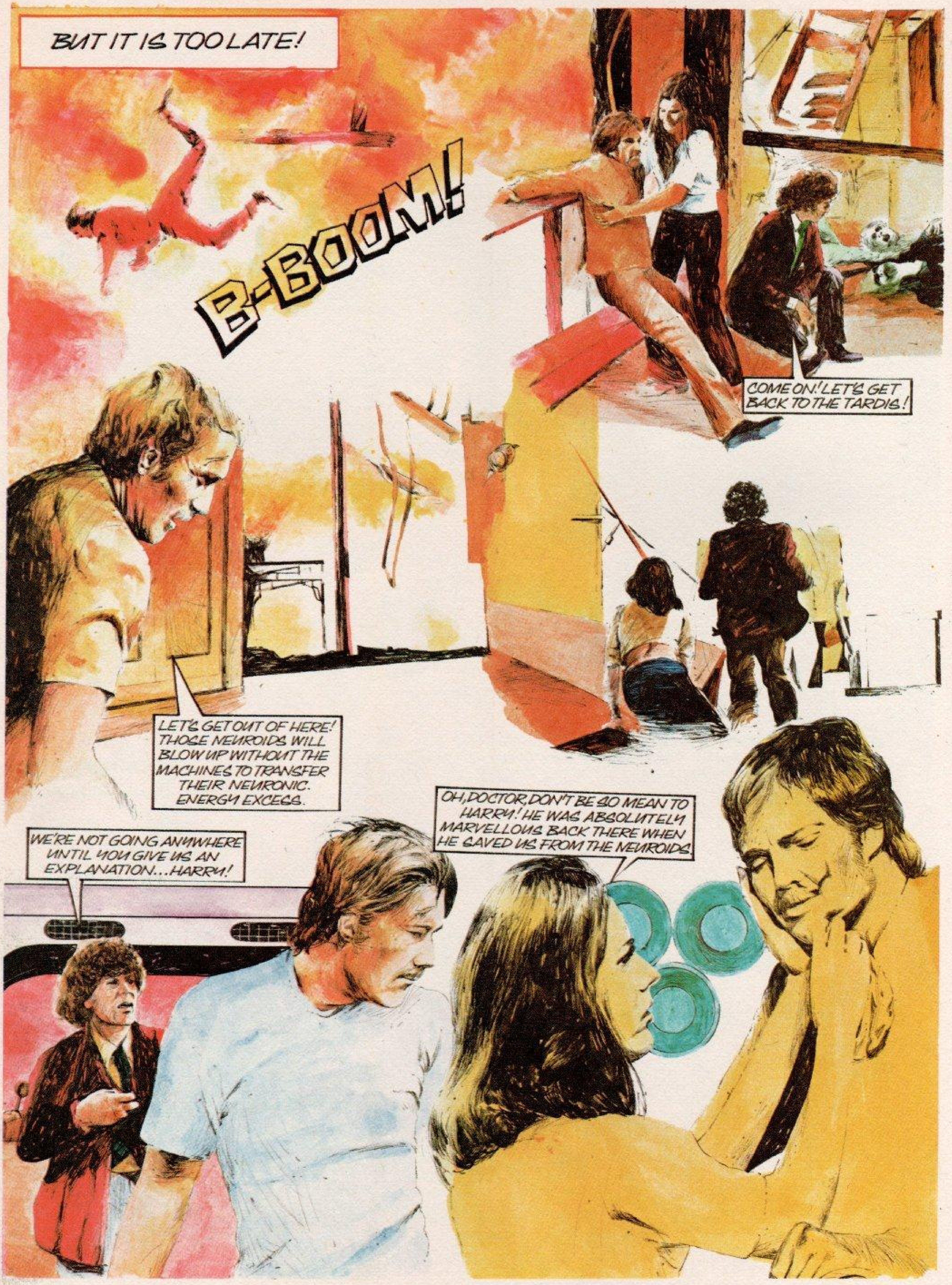
NEURONIC NIGHTMARE

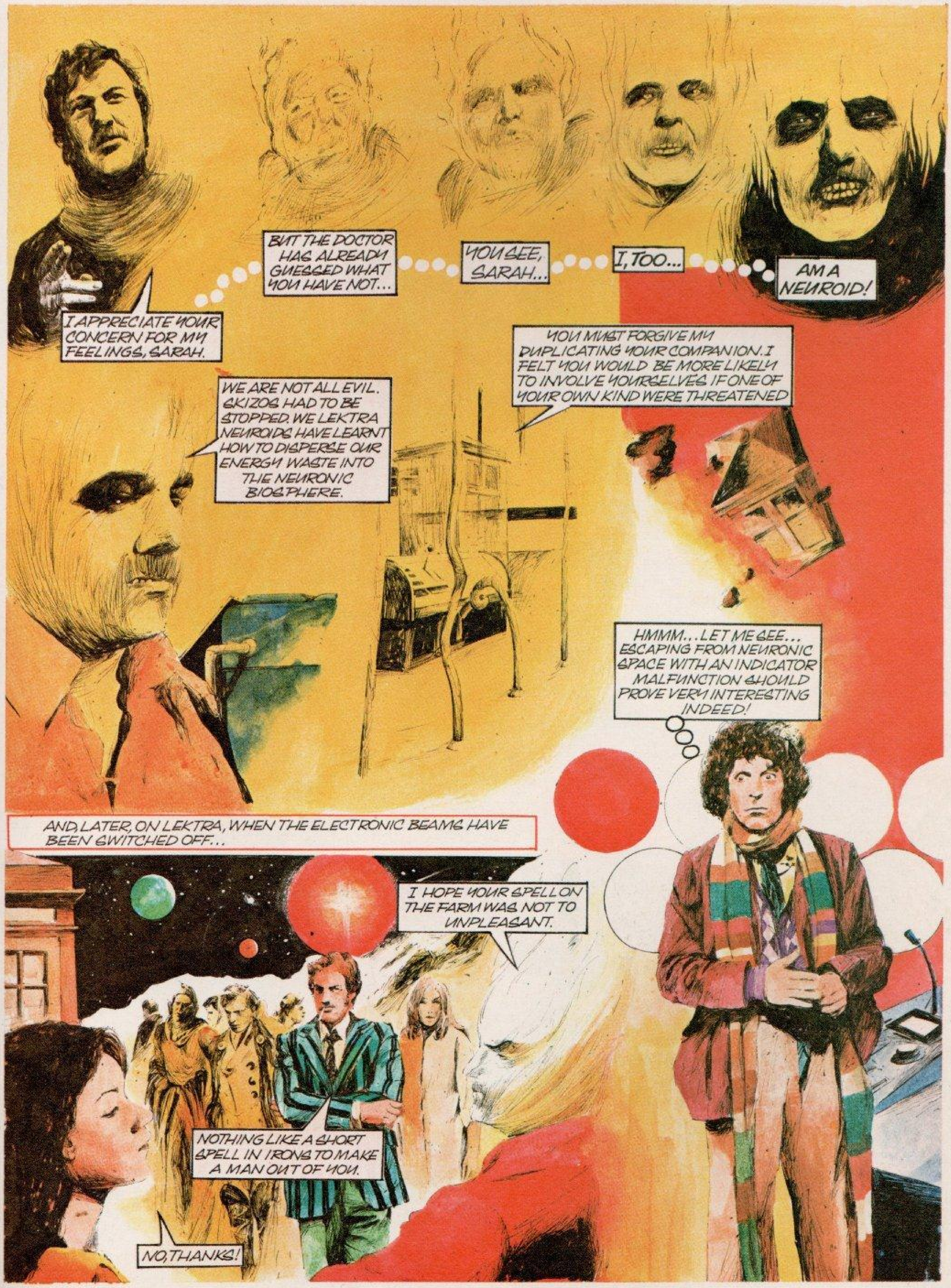

NEURONIC SPACE...THE CROSSROADS OF INFINITY. A MAELSTROM OF LIMITLESS DIMENSIONS...WHERE THE UNIVERSE CAN EXIST ON A SPECK OF DUST!
WHERE, ON A TINY PLANET MAROONED IN THE EYE OF THIS COSMIC HURRICANE...
THERE IS CONSTERNATION...
INSIDE A NEWLY-ARRIVED POLICE PHONE BOX...
WHERE THE DEVIL COULD HE HAVE GOT TO?
I DON'T KNOW. WE ALL DE-MATERIALISED AT LEAST ONCE BEFORE WE GOT HERE.
AND FEAR!
SOMEONE TALKING ABOUT ME?
P-PERHAPS HE JUST DISINTERGRATED!
HARRY!

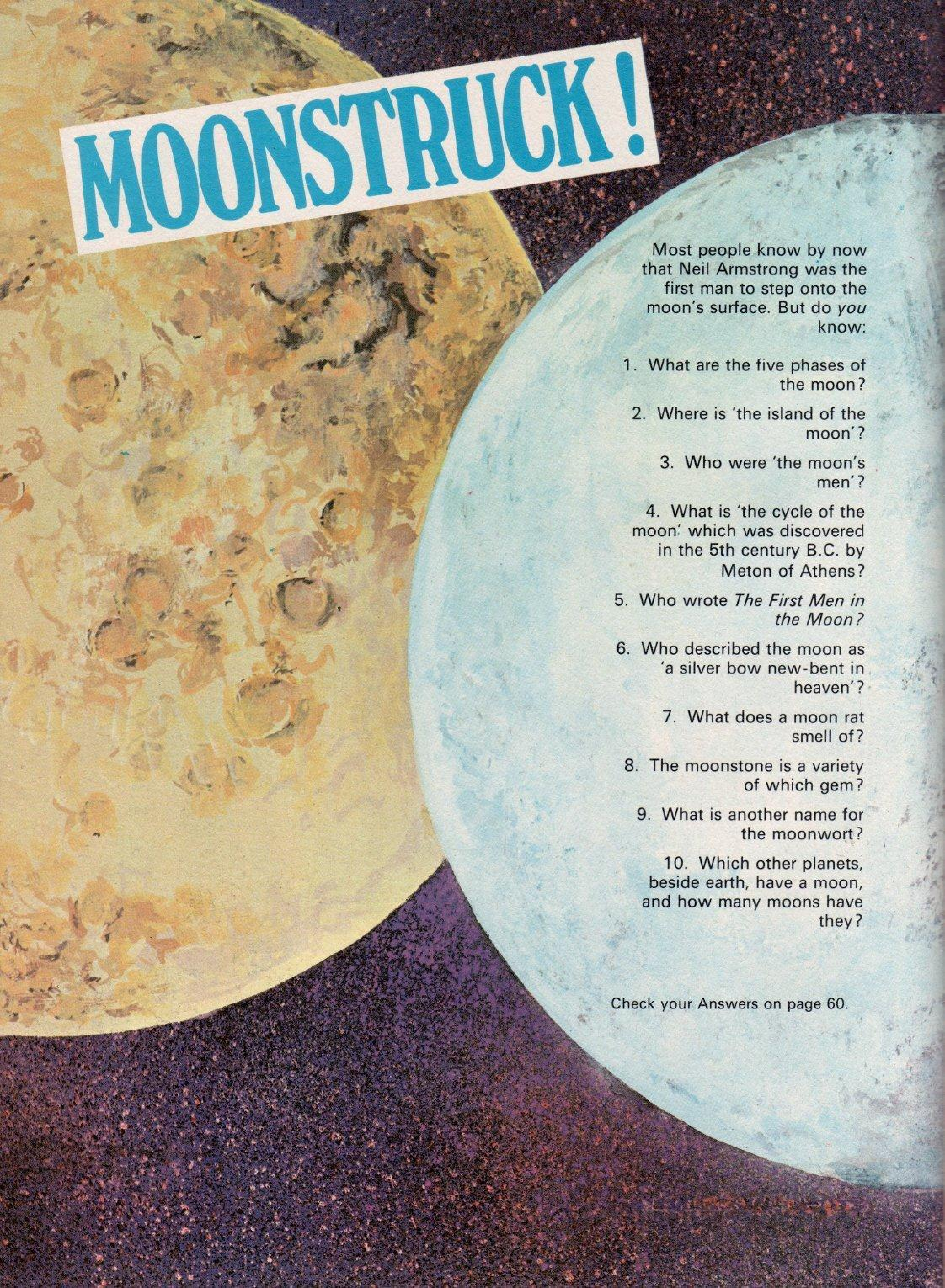

SORRY I'M LATE, BUT I GOT DIVERTED.
YOU GOT WHAT?
BUT BEFORE HARRY CAN EXPLAIN...
DOCTOR! THE TARDIS! IT'S MOVING!
AH, SO YOU HAVE DECIDED TO COME OUT!
WHY NOT? I'M DR. WHO!


AND I AM SKIZOS. MY EX-RAY VISION TELLS ME YOU ARE NOT THE SAME SPECIES AS YOUR COMPANIONS. WHAT IS YOUR RECEPTIVITY UNIT?
MY WHAT?
I MEAN HOW MANY ZAMS OF NEURONIC ENERGY CAN YOU ABSORB? IF YOUR UNIT IS HIGH WE MAY SPARE YOU TO BREED ON THE FARM.
YOU ARE NOW IN SKAROL. ON THE OTHER SIDE OF THE PLANET IS LEKTRA. WE KEEP A HERD OF HUMANIODS THERE IN ELECTRONIC PENS. WE ARE TRYING TO CULTIVATE THEIR RECEPTIVITY.
FOR WHAT PURPOSE?
TO ABSORB THE EXCESS ENERGY OF OUR CONDITION. IF YOU HAVE A HIGH UNIT YOU MIGHT PROVE USEFUL.
TAKE THAT!
BUT YOU WILL, DOCTOR- SEIZE HIM!
I'LL HAVE NO PART IN THIS!


LATER...
AND WHAT HAPPENS TO THE RECIPIENTS OF THIS ENERGY?
YOU SEE, DOCTOR, SINCE OUR PLANET HAS BEEN MAROONED HERE WE HAVE HAD TO BREED LIVING CREATURES TO ABSORB THE NEURONIC ENERGY WASTE THAT WOULD OTHERWISE BUILD UP TO CRISIS POINT INSIDE US!
THEY DIE, OF COURSE. WE WILL GAUGE YOUR RECEPTIVITY BY MONITORING THE EFFECTS ON YOUR SYSTEM WHEN WE DRAIN THE ENERGY FROM THIS FEMALE!
YOU FIEND!
SWITCH ON.
HARRY! COME HERE! GRAB MY HAND!
NOW, TRY TO TOUCH SARAH! REACH, HARRY! STRETCH!
YES, REACH, HARRY... REACH AS YOU HAVE NEVER REACHED BEFORE... FOR YOU ARE REACHING FOR THE FUTURE... FOR FREEDOM...
FOR YOUR LIFE!
HE'S BY-PASSED THE DISTRIBUTOR!
THE CIRCUIT'S OVERLOADING!
STOP HIM! HE'LL BLOW UP THE MACHINE!


BUT IT IS TOO LATE!
B-BOOM!
COME ON! LET'S GET BACK TO THE TARDIS!
LET'S GET OUT OF HERE! THOSE NEUROIDS WILL BLOW UP WITHOUT THE MACHINES TO TRANSFER THEIR NEURONIC ENERGY EXCESS.
WE'RE NOT GOING ANYWHERE UNTIL YOU GIVE US AN EXPLANATION... HARRY!
OH, DOCTOR, DON'T BE SO MEAN TO HARRY! HE WAS ABSOLUTELY MARVELLOUS BACK THERE WHEN HE SAVED US FROM THE NEUROIDS.


I APPRECIATE YOUR CONCERN FOR MY FEELINGS, SARAH.
BUT THE DOCTOR HAS ALREADY GUESSED WHAT YOU HAVE NOT...
YOU SEE, SARAH...
I, TOO...
AM A NEUROID!
WE ARE NOT ALL EVIL. SKIZOS HAD TO BE STOPPED. WE LEKTRA NEUROIDS HAVE LEARNT HOW TO DISPERSE OUR ENERGY WASTE INTO THE NEURONIC BIOSPHERE.
YOU MUST FORGIVE MY DUPLICATING YOUR COMPANION. I FELT YOU WOULD BE MORE LIKELY TO INVOLVE YOURSELVES IF ONE OF YOUR OWN KIND WERE THREATENED
HMMM... LET ME SEE... ESCAPING FROM NEURONIC SPACE WITH AN INDICATOR MALFUNCTION SHOULD PROVE VERY INTERESTING INDEED!
AND, LATER, ON LEKTRA, WHEN THE ELECTRONIC BEAMS HAVE BEEN SWITCHED OFF...
I HOPE YOUR SPELL ON THE FARM WAS NOT TO UNPLEASANT.
NOTHING LIKE A SHORT SPELL IN IRONS TO MAKE A MAN OUT OF YOU.
NO, THANKS!

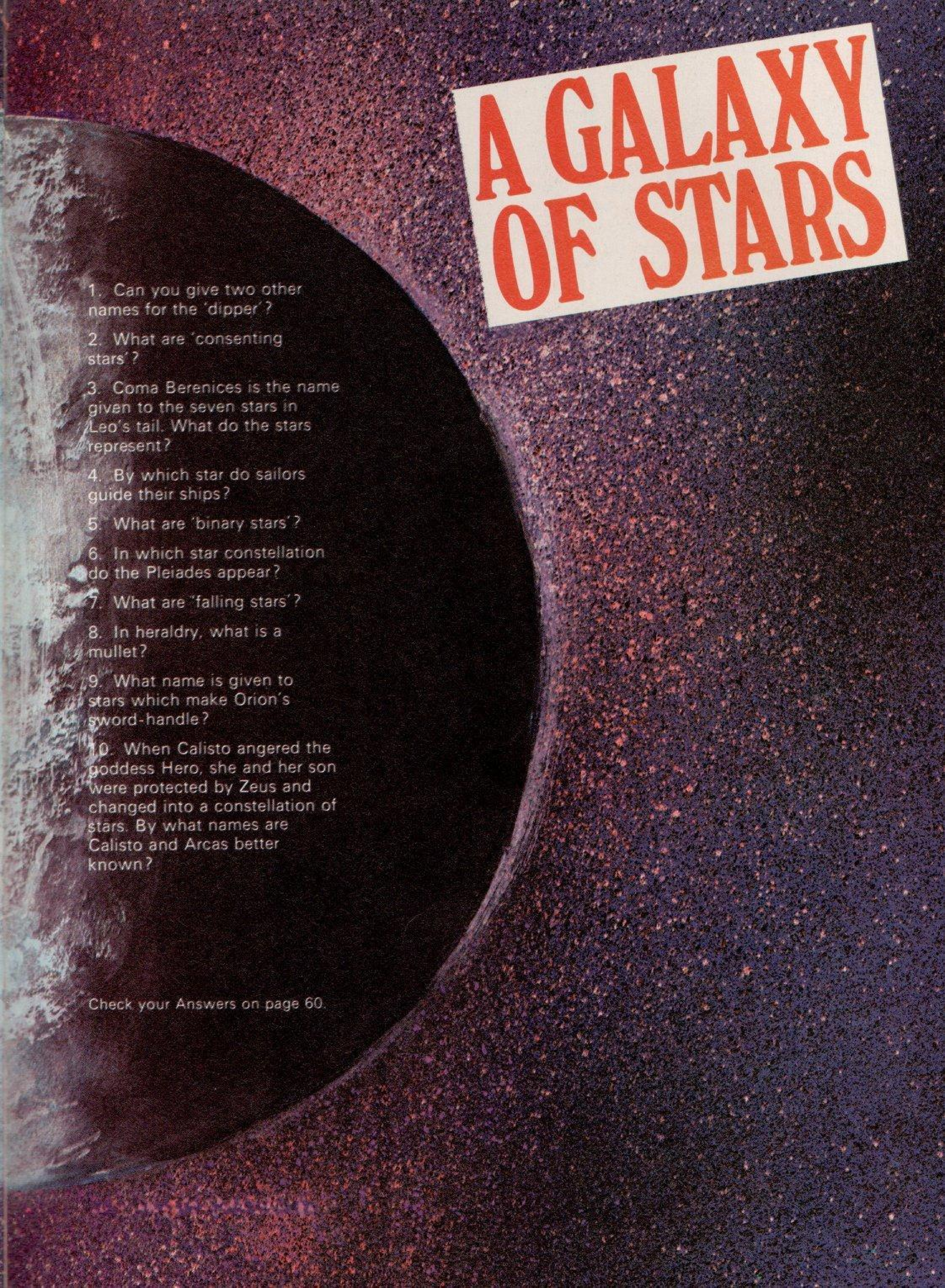


MOONSTRUCK!

Most people know by now that Neil Armstrong was the first man to step onto the moon's surface. But do *you* know:

1. What are the five phases of the moon?
2. Where is 'the island of the moon'?
3. Who were 'the moon's men'?
4. What is 'the cycle of the moon' which was discovered in the 5th century B.C. by Meton of Athens?
5. Who wrote *The First Men in the Moon?*
6. Who described the moon as 'a silver bow new-bent in heaven'?
7. What does a moon rat smell of?
8. The moonstone is a variety of which gem?
9. What is another name for the moonwort?
10. Which other planets, beside earth, have a moon, and how many moons have they?

Check your Answers on page 60.



A GALAXY OF STARS

1. Can you give two other names for the 'dipper'?

2. What are 'consenting stars'?

3. Coma Berenices is the name given to the seven stars in Leo's tail. What do the stars represent?

4. By which star do sailors guide their ships?

5. What are 'binary stars'?

6. In which star constellation do the Pleiades appear?

7. What are 'falling stars'?

8. In heraldry, what is a mullet?

9. What name is given to stars which make Orion's sword-handle?

10. When Calisto angered the goddess Hero, she and her son were protected by Zeus and changed into a constellation of stars. By what names are Calisto and Arcas better known?

Check your Answers on page 60.

AVAST THERE!

"*If you were the only girl in the world and I was the only boy . . .* ah! Almost got it now; this Oscillating Reverberator Unit should make all the difference to Tardis. Old thing could do with a little renewal." The Doctor, head bent in concentration over his project, was talking to himself, as he often did when he worked.

Just at that moment, however, the Doctor's concentration was broken as the door to his laboratory was flung open. Warrant Officer Benton burst in and, judging by his face, something was definitely wrong. . . .

"Doctor! I've been sent by the Brigadier to fetch you. Quickly! There's something important he has to see you about!"

The Doctor sighed, he'd learned a long time ago that there wasn't any use in arguing. The Brigadier and, indeed, a good many of his staff were not to be reasoned with. Hastily, he put the final touches to his new piece of equipment and left it on the bench to be installed in Tardis on his return.

Half-an-hour later the Doctor re-entered his laboratory at UNIT headquarters, closely followed by Sarah and Harry Sullivan, the organisation's medical officer. Doctor Who was not pleased.

"False alarm again!" he muttered disparagingly. "That man sees Germ Warfare lurking round every corner. If he caught a common cold he'd put it down to some sort of enemy strategy for taking over the entire planet Earth!"

Sarah and Harry glanced at one another and grinned; there certainly was an element of truth in what the Doctor was saying.

Spotting the grins on his companions' faces, however, the Doctor forgot his irritation and joined in.

"Come along, you two," he said, still smiling, "I want to show you something I've been working on for the Tardis. I was just about to go on a demonstration run when Benton arrived."

Harry looked a little uncertain. "Oh, I don't know, Doctor, I'm supposed to be on duty, you know. Can't be caught deserting my post now, can I?"

"Nonsense!" the Doctor waved the excuses aside. "This will only take five minutes, earth time that is. I'm afraid your indispensability has not been proved to such a fine degree yet, Harry," he added drily.

Shrugging his shoulders, with the air of a beaten man, Harry

followed Sarah into the Tardis. "Oh well, I suppose you're right as usual, Doctor," he sighed.

"Now then," the Doctor said, looking at his companions as though they were children to whom he was about to tell a story, "we can begin. I'm not going to take us anywhere in particular, I just want to put this new gadget of mine through its paces. Therefore, I'll open up the video screen, in case you find the mechanics of this exercise a little tiresome."

The Doctor had been right in his assumption. After a moment or two Sarah and Harry turned their attention to the screen, through which they could see the silent still world beyond. They were so engrossed that they didn't even notice the look of consternation on the Doctor's face, or the fact that he had removed his Oscillating Reverberator Unit to examine it more closely.

"Aaah, now I see what the matter is. That idiot Benton interrupted me at the most crucial stage, the final assembly is back-to-front! It'll only take a second to put it right." The Doctor pulled his sonic screwdriver from his pocket and set to work. "Almost finished. . . ."

"Doctor! Doctor! There's something. . . ." Sarah's cry of surprise was stifled as the Tardis began to rock violently.

"We're being attacked!" Harry yelled, catching Sarah just in time to save her from banging her head on the console.

The Doctor's eyes widened slightly in surprise. "You know, Harry; I do believe you're right," he agreed, holding on tightly as the Tardis rocked violently once more.

"Let's get out of here, Doctor!" Sarah was terrified.

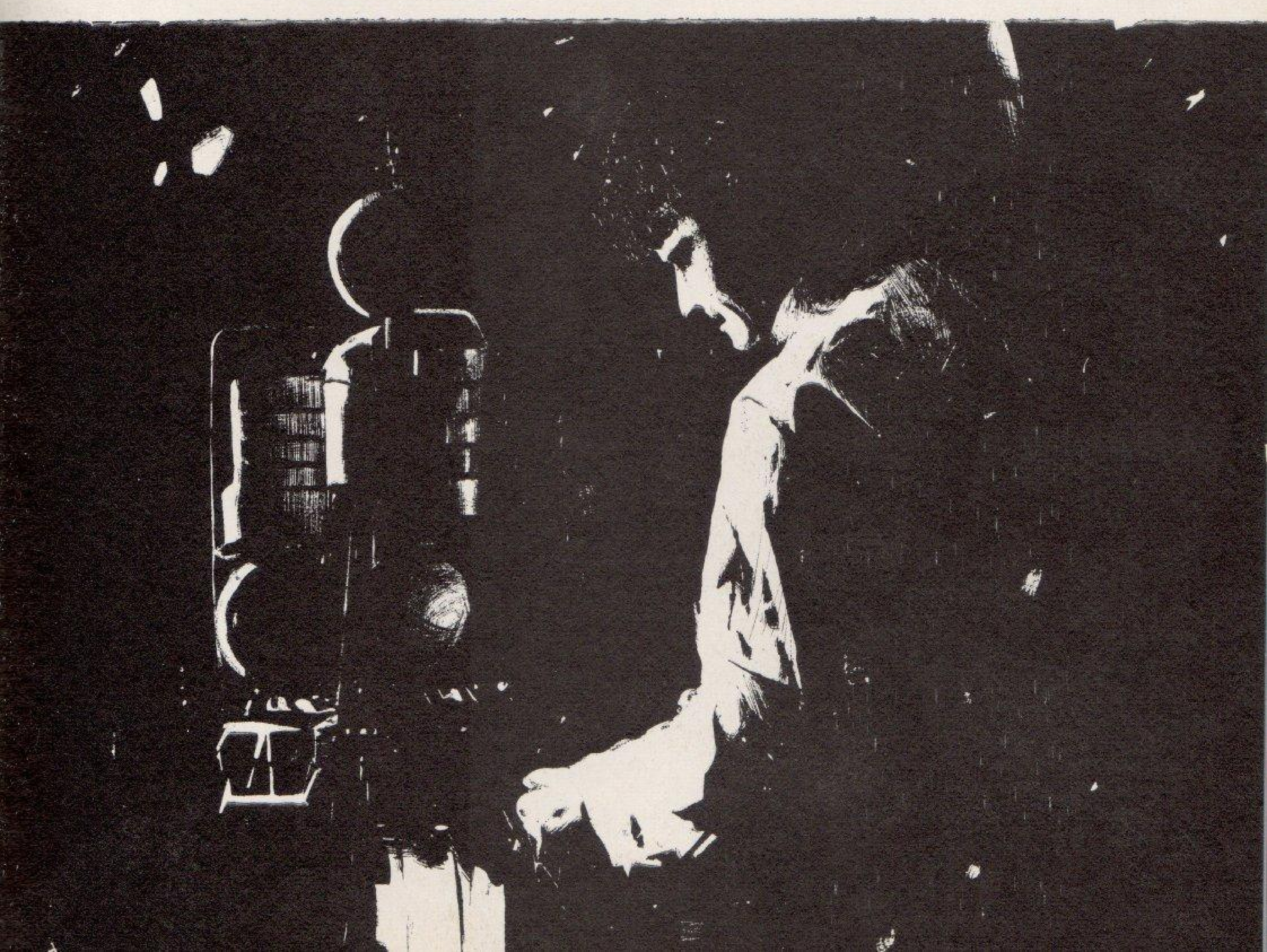
"Impossible at this precise moment, I'm afraid. I haven't quite finished the Oscillating Reverberator Unit, and I won't be able to as long as we go on shaking and bumping this way. Still, I don't think you need worry too much, the Tardis is much stronger than you think, you know. There aren't many attacks that could get through."

Sarah and Harry looked at each other in despair, both wishing that they shared Doctor Who's imperturbable faith in the invulnerability of the amazing machine.

Seconds later, however, even the Doctor began to look a little disturbed. "Now that's something I hadn't reckoned on," he murmured, as the Tardis began to move slowly towards the alien craft, as if drawn by a magnet. "It's very interesting. . . ."

As they drew nearer, the looks of horror on Sarah and Harry's faces changed to surprise.

"Golly, it's a galleon! A galleon in outer space!" Harry gasped in amazement. "I can't believe it!"



HOW OLD?

Scientists believe that all the planets in our solar system were formed round about the same time, and yet, some are older than others. Which isn't quite as silly as it at first sounds; here's why. Just as different things on earth have a different life span, so do things in the solar system. A dog's average life is about fifteen years, a man's is about seventy-five years. So although Earth and Mars and Jupiter and all the other planets were formed round about the same time, Mars is probably older than Earth, Jupiter is probably younger, and as for the others . . . that remains to be seen.

Just as Harry finished speaking, the Tardis came to the end of its journey, right on the deck of the galleon. For a moment they all looked at one another in stunned surprise, then Doctor Who arrived at a decision.

"Sarah, Harry, I'm going out. I want you two to stay here, I think it's probably the safest place for you at the moment."

"But. . . ." Sarah and Harry began to protest, but the Doctor was quite firm.

"No," he said, "I'm not listening to any arguments. I want you both to stay quite clear of the door, that way I hope they'll believe that I'm the only person in the Tardis . . . and stop looking so worried both of you! Anyone would think that just because they fired at us, they're unfriendly!" So saying, Doctor Who opened the door of the Tardis and stepped outside, closing the door firmly after him.

Sarah and Harry rushed to the video screen, but all they could see was Doctor Who cautiously making his way along the deck. There wasn't another single soul in sight.

"You don't think it's some sort of interplanetary *Marie Celeste*, do you?" Sarah asked nervously.

"Shouldn't think so, old bean. Whatever it was they were firing at us with, it wasn't ghostly, that's for sure." Harry spoke without taking his eyes off the screen.

As Harry finished speaking, the Doctor reached the far end of the deck, just beyond an opening which led into the ship. Looking cautiously behind and in front of him, he moved out of sight.

Harry relaxed in his seat. "I hope this isn't going to take too long. If someone at Headquarters realises I've gone AWOL, I'll be for the high jump."

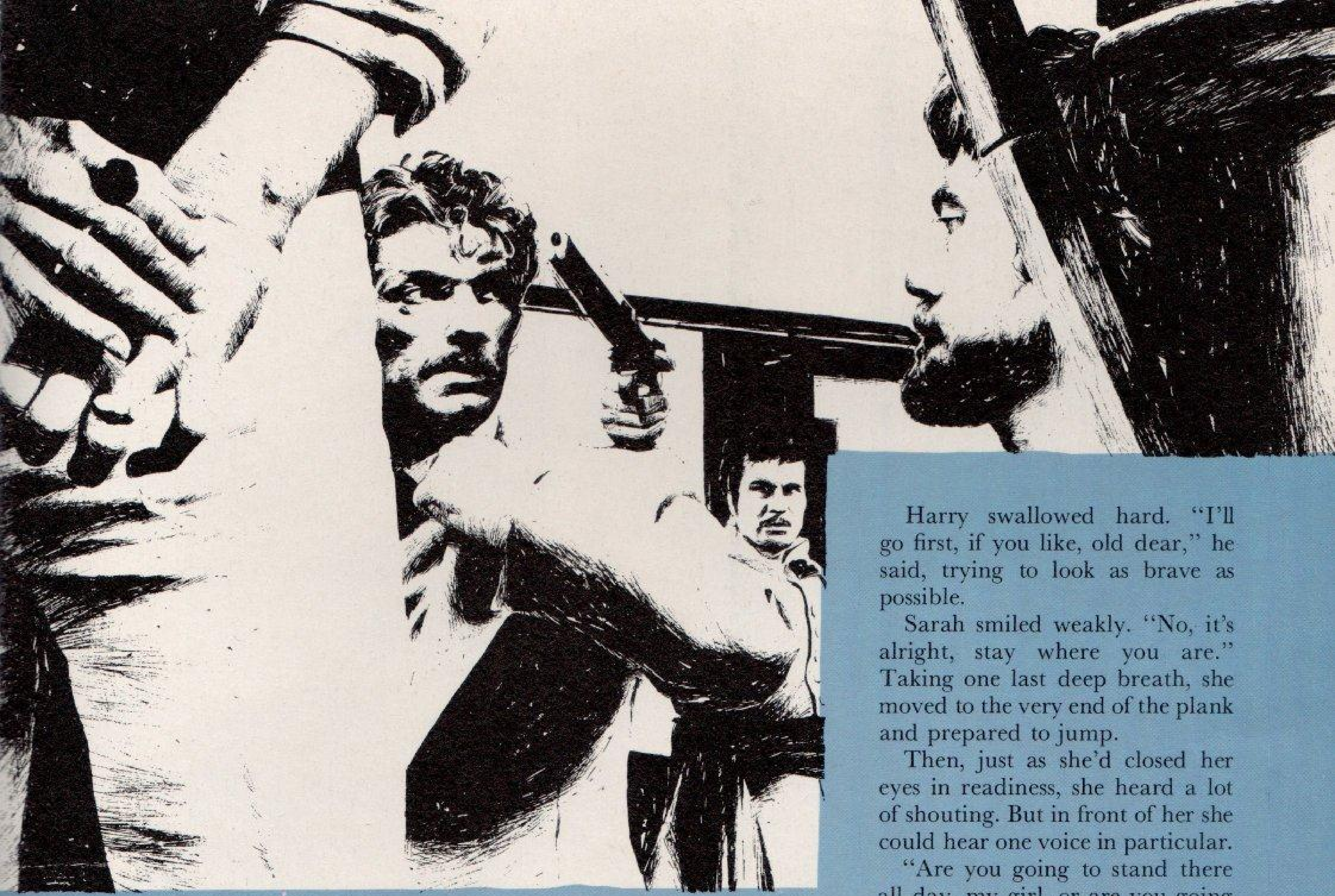
Beside him, Sarah stiffened and leaned nearer the screen. "Look, Harry! Look!" she whispered, pointing excitedly to the scene in front of them. "The galleon's not deserted at all. We'd better go and warn the Doctor. . . ."

"Hang on a minute, you don't seem to have noticed, they're not following the route the Doctor took . . . they're coming over here in *our* direction!" Harry cried, as he tried to stop Sarah from rushing outside.

But it was too late, she already had the door open, and she fell right into the arms of a reception committee. . . .

"Who are you and what are you doing in *my* territorial confines?"

Sarah looked at the man whom they called, not very surprisingly, Captain, and clamped her lips tightly shut. He surveyed her for a moment or two with some amusement, and then turned to Harry.



"You seem a little more sensible. Can you answer my questions?"

For a moment Harry hesitated, the Captain did seem very reasonable. Then he made up his mind and clamped his lips tightly shut, too.

Finally, the Captain lost patience. "Well," he said, "as long as you refuse to co-operate, there's nothing more I can do." He turned to one of the men standing by his side. "Prepare the plank!" he said.

Sarah looked at Harry in amazement. Surely he didn't mean it? Five minutes later they were certain he did.

With their hands securely tied behind their backs, they were led up to where the plank was waiting for them.

"You may, or may not, know that on planet Earth, a primitive place I'm told," the Captain said, "they once sailed vessels similar to ours on their seas, relying on the wind to blow them to their destination. We Argamems do not rely on such ridiculous elements. We are driven by laser beams sent from our planet's surface, our sails are so constructed as to gather the energy and utilise it. The vessel suits our purpose well, as does this form of er . . . *punishment*. Of course, you cannot drown, as you would have on earth, you will simply fall into orbit until you are directly in the path of one of our laser beams. I don't think I need to explain any further. . . ."

Harry gulped. "Where's the Doctor got to? That's what I want to know," he whispered, as he and Sarah began their long walk to the end of the plank.

Sarah shrugged her shoulders in despair. Then she saw something out of the corner of her eye. "He's just getting back into the Tardis," she whispered. "You don't think he's not noticed what's going on over here, do you?"

Finally, despite their shuffling and stopping, they reached the end of the plank.

"Jump!" the Captain ordered.

Harry swallowed hard. "I'll go first, if you like, old dear," he said, trying to look as brave as possible.

Sarah smiled weakly. "No, it's alright, stay where you are." Taking one last deep breath, she moved to the very end of the plank and prepared to jump.

Then, just as she'd closed her eyes in readiness, she heard a lot of shouting. But in front of her she could hear one voice in particular.

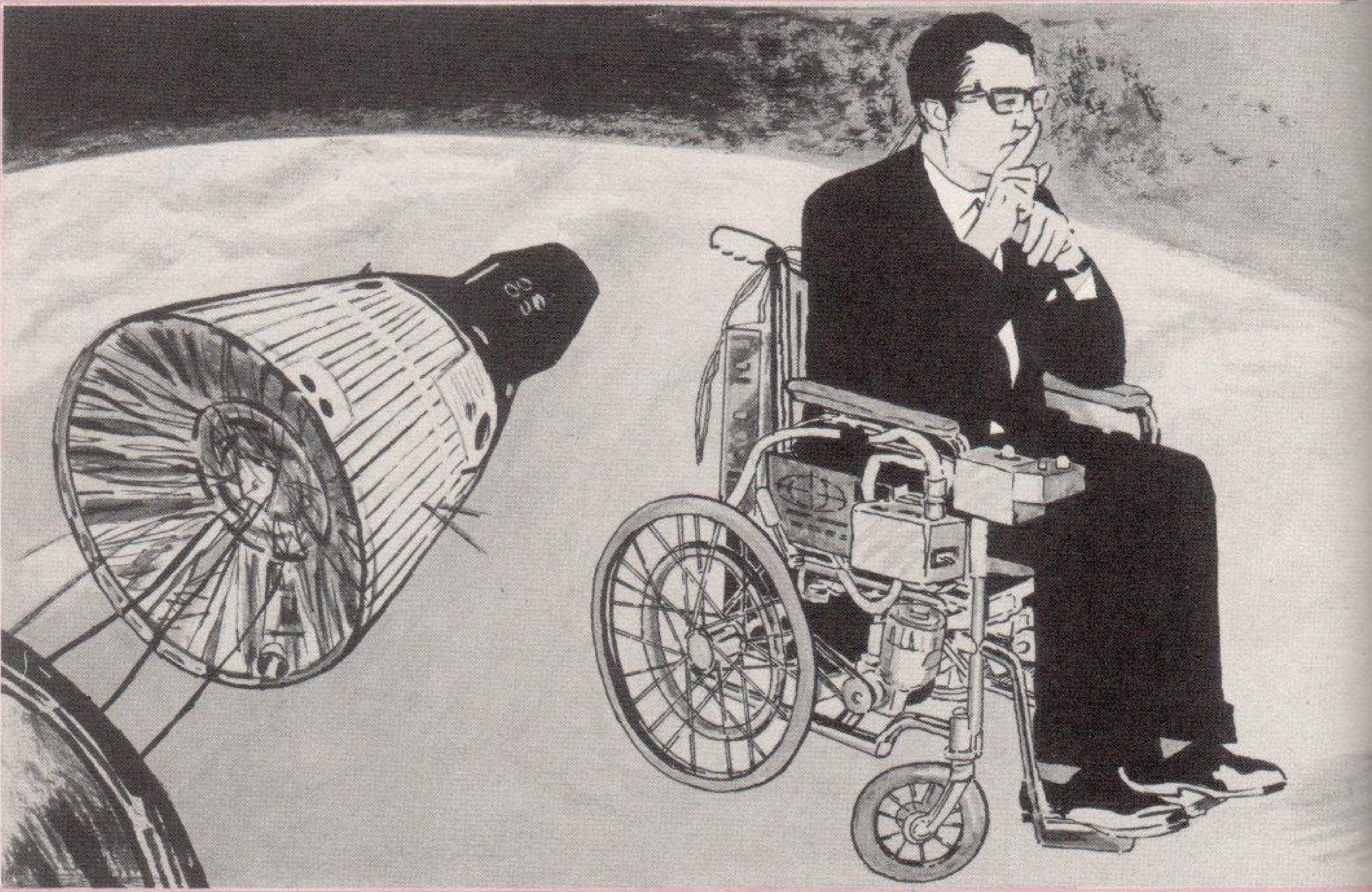
"Are you going to stand there all day, my girl, or are you going to get in?" the voice enquired.

Sarah opened her eyes in amazement. In front of her the Tardis hovered, its door open and the Doctor clearly visible. . . .

"Phew, that was a close one! But how did you manage it, Doctor?" Harry sank thankfully into a seat and looked at Doctor Who, who was programming Tardis for its return journey.

"Well," the Doctor replied, "when I saw what was happening to you two, I couldn't quite decide what to do for a moment. I considered conjuring a cutlass out of space and taking on the Captain and his crew single-handed, but that plan seemed to have a narrow margin for success . . . so I decided on the second course. I crept unnoticed into the Tardis, finished off my Oscillating Reverberator Unit and . . . here we are! And I must say, despite the fact that it was very silly of you to get captured in the first place, it did come in useful, because at least I had the right conditions to test my new piece of equipment. . . ."

THANKS TO SPACE RESEARCH



Mention the everyday uses to which space research has been applied and most people think of non-stick pans. But the advantages of advanced research are far more varied than miracle PTFE, the coating that protects the nose cone from the searing heat of a rocket's re-entry into the earth's atmosphere. . . .

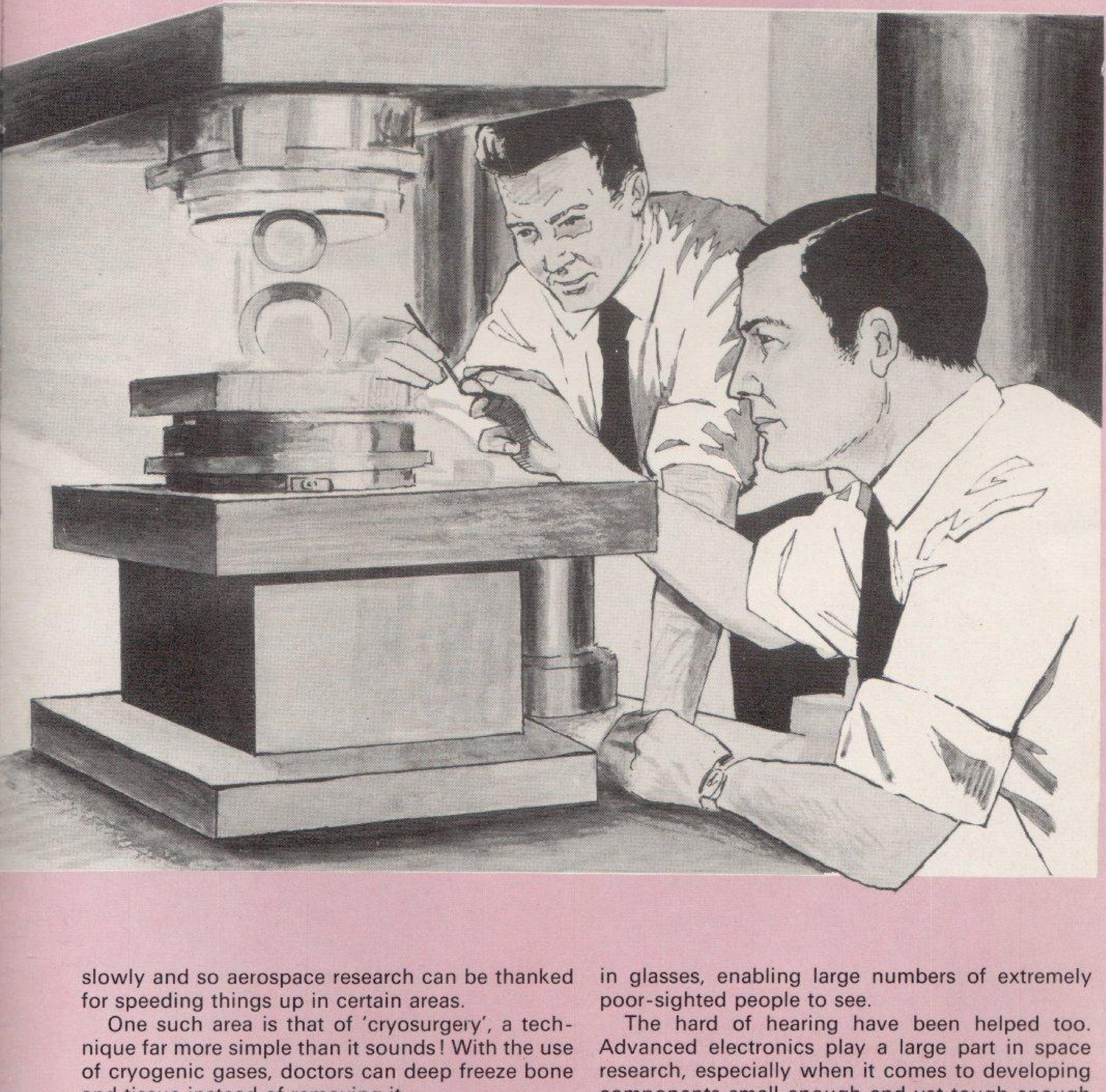
It's All in the Eyes

A great deal of research has been done into the various ways an astronaut could control his spacecraft, especially during emergencies and periods of high speed. The 'sight switch' was the result of this research. But the use of this invention has not been reserved only for its use in outer space, a very worthwhile job has been found for it right here on earth. Invalids, until now confined to their homes, can now have greater mobility with the help of the 'sight switch'.

Even the most disabled person, dependant on having someone there to push and manoeuvre his wheelchair, can manage alone with this invention, and all he needs is his eye sight. The powered wheelchair, instead of being steered more conventionally with the arms or legs, can be made to go left or right, backwards or forwards, simply by a slight movement of the invalid's eyeballs. The movement triggers the mechanism in a spectacle-like control panel and even the most severely disabled person can be mobile.

A Boost for Medical Research

In medicine, research is going on all the time, but sometimes everything happens just a little too



slowly and so aerospace research can be thanked for speeding things up in certain areas.

One such area is that of 'cryosurgery', a technique far more simple than it sounds! With the use of cryogenic gases, doctors can deep freeze bone and tissue instead of removing it.

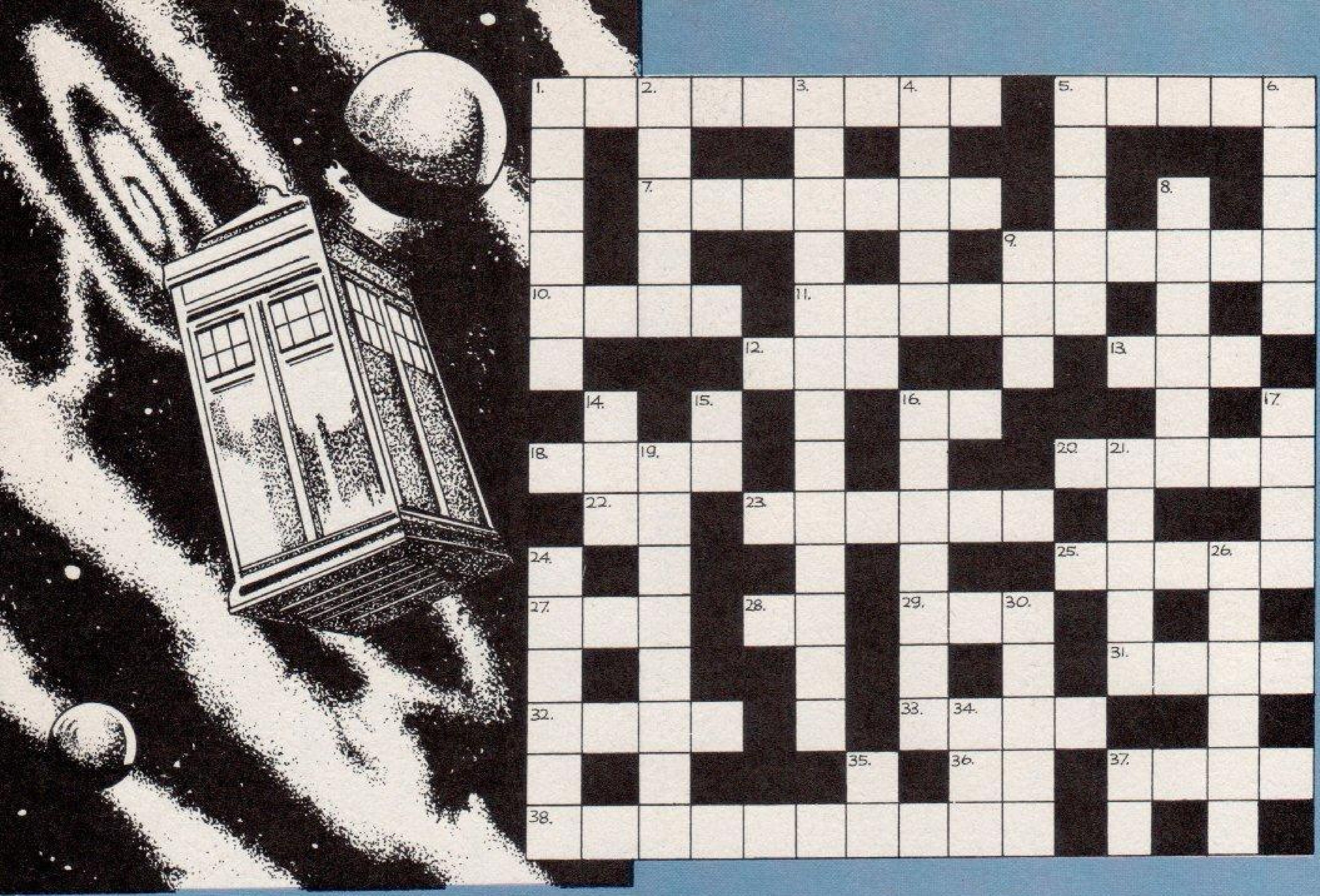
This type of surgery has been gaining popularity with doctors for many years, but the cryogenic gases were not easily available, nor was enough known about them until their extensive use in space research and technology.

Sight and Sound

A number of people with very poor eyesight have good reason to be grateful to the space researchers too. Advances in space optics, especially the development of multi-directional lenses for cameras in earth satellites, has led to the use of such lenses in glasses, enabling large numbers of extremely poor-sighted people to see.

The hard of hearing have been helped too. Advanced electronics play a large part in space research, especially when it comes to developing components small enough and yet tough enough to withstand the rigours of a journey into space and still remain totally reliable. Such developments have meant the construction of hearing aids only slightly larger than an aspirin, weighing only 0.1 oz. and without the need for bulky wires, battery packs, microphones and speakers which the more conventional aids require.

In a lot of cases such developments would have occurred anyway, during the course of time but, thanks to space research, a lot of people have been helped *today* instead of tomorrow.



SPACEWORD

Dr Who has compiled this crossword for you—which, as you might expect, will test your knowledge of space as well. That is, after all, the subject he knows most about.

Clues Across:

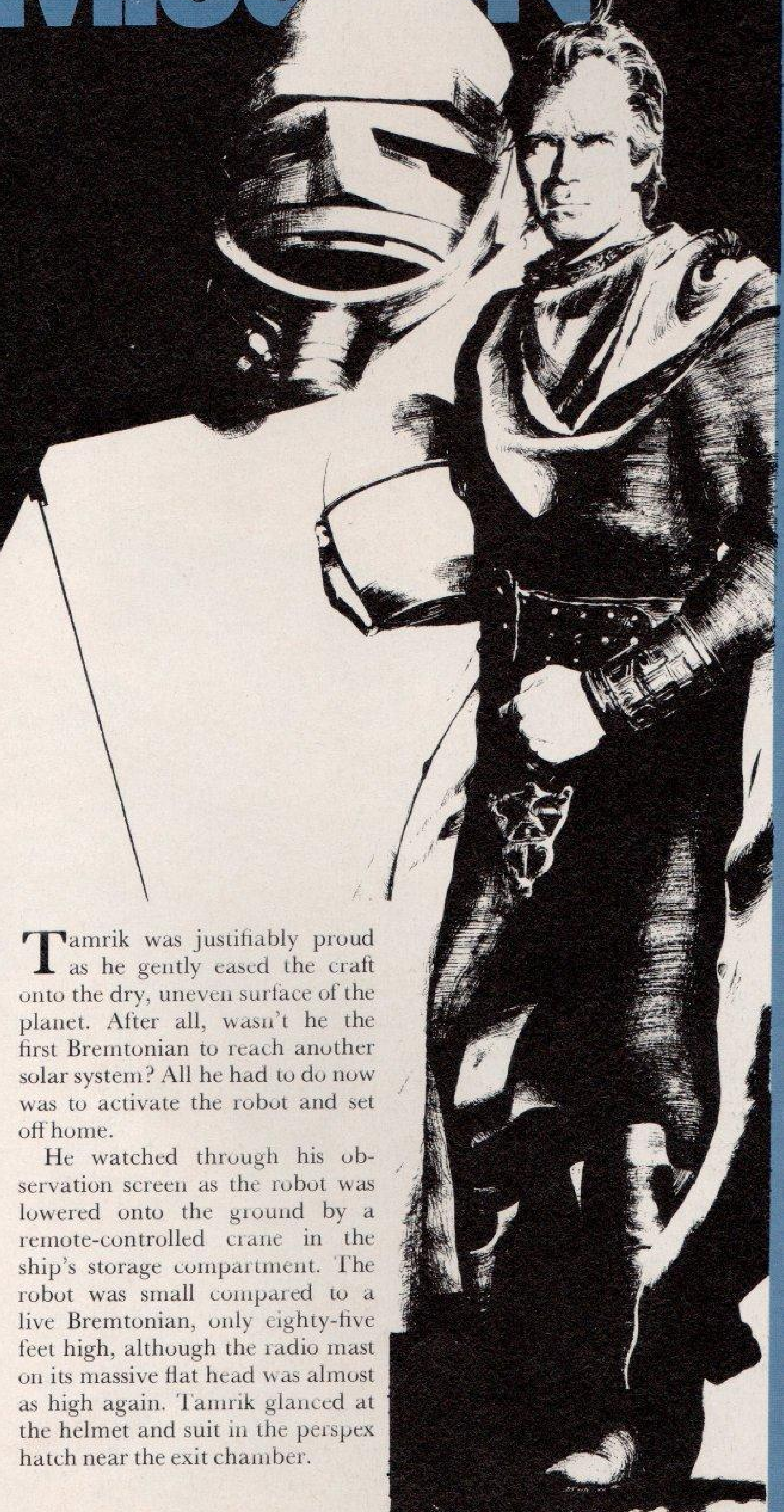
1 Optical instrument for enlarging the image of a distant object
5 Prefix relating to *stars*
7 Time in the flight of a rocket when propellant used up
9 Name of USA's second space programme—also, zodiac sign
10 Shining celestial body
11 Boy's name
12 Kingly zodiac sign
13 Frozen water
16 Note well
18 Mineral used as fuel
20 Vapours
22 Direction of the stars
23 Movable tower used to service launch vehicles
25 To guide
27 Calculated by Time passed
28 Hello!
29 Colour attributed to Mars
31 USA and USSR started the space . . . .
32 To prune
33 Staffordshire town, national emblem of Wales
36 Initially, Anglo Saxon
37 . . . . Kennedy, famous American blast-off base
38 Meeting of two or more crafts in space—though Paris sounds more likely

Clues Down:

1 Push given to rocket by its engine
2 Most balanced zodiac sign?
3 Group of 10 across
4 Planet farthest from sun—also, Disney dog
5 Warlike zodiac sign
6 Path of a planet or artificial satellite
8 Fishy zodiac sign
9 American word for petrol
14 I owe you
15 British Legion (abbr.)
16 Can be super, but never affected
17 Homeland of the first ever man in space
19 Point farthest from the sun in the path of a solar satellite
21 Prefix meaning *among*, as in . . . . . planetary
24 Under a flying cup?
26 Flee from danger—as Dr Who often does
30 To adorn
34 French water?
35 Shortened television
37 Chemical symbol for copper

Answers on page 60

THE MISSION



Tamrik was justifiably proud as he gently eased the craft onto the dry, uneven surface of the planet. After all, wasn't he the first Bremtonian to reach another solar system? All he had to do now was to activate the robot and set off home.

He watched through his observation screen as the robot was lowered onto the ground by a remote-controlled crane in the ship's storage compartment. The robot was small compared to a live Bremtonian, only eighty-five feet high, although the radio mast on its massive flat head was almost as high again. Tamrik glanced at the helmet and suit in the perspex hatch near the exit chamber.

Why not? He had been in space for nearly six years and he hadn't been out once, apart from the regular space walks to check the hull of his craft. Why shouldn't he set foot on what for Bremtonians of the future would be home?

The planet looked ideal. It was obviously young, obviously rich in the materials necessary to create life. The crust was a bit thin and constantly erupting, but if the robot did his job right it would be perfect. Tamrik went over to the hatch and put on the suit.

As he walked gingerly down the steps, Tamrik felt a strange elation. It had been planned that the first time he used these steps would be on returning to a hero's welcome on Bremtoss, and yet here he was, the shiny ceremonial stairway stretching out beneath him, and the only signs of welcome were a static robot and a volcano blazing away in the distance.

The atmosphere was dense, toxic. The thick red clouds above Tamrik captured the sun's heat and, as it was, the planet was a hot, hostile place, unfit for Bremtonian habitation.

Tamrik smiled at the way the atmosphere bent what little light filtered through the clouds, making the horizon curve upwards all around him, as though he were standing in a giant saucer. The cranks at Flat Bemtoss Society would have a field day here.

Another eruption, closer this time, snapped him back to the present. The planet had great potential all right. It was up to the robot to help them realise that potential. He stepped onto the ground, and looked around.

The planet was alive, although he was the only living thing on it. He could hear rumblings from far and near, could see explosions and eruptions all around him, but he felt no fear. It was as if this whole smouldering world belonged to him, as if he were a mighty king with a new kingdom to play with.

And then suddenly there was heat, searing heat and red, red, red. And then nothing.

Sarah stifled a cry as the long fin wrapped around her shoulder and pulled her forwards. The Doctor smiled and Harry laughed as he watched the two Tyranians, fins linked, moving her slowly around in a circle.

"Dancing in threes is a new one on me."

They were in a large square building. The room brightly lit and there was a melodic tinkling sound coming from the coloured sprinklers that provided the warm drizzle falling onto the dancers.

Against the walls there were several booths, and in them some Tyranians were standing with helmets on their heads. Some of them were waving their fins in a circular motion, a Tiranian sign of enjoyment.

The three of them had come to Tyrano so that the Doctor could study a new type of power the Tyraneans had discovered when investigating the effects of Zerkan gas on their most abundant element, Klarium.

The Tyranians were amphibians, smaller than humans and plumper, and their heads grew straight from their bodies. They had two long flippers at their sides and two short stubby legs. The eyes on their faces were large and round and wide apart; they had no noses, and their mouths were shaped so that they gave the impression of a permanent smile.

"I think I'll have another go in this thing," said Harry, ducking into one of the booths and crouching to fit the helmet over his head. He picked up the control box and began twiddling the dials.

"Careful, Harry. You don't want to get sozzled!"

Harry didn't hear the Doctor's friendly warning. Already the machine was filling his mind with images, stimulating his every nerve. He pushed the dial round to the educational section and singled out Tyranian history.

The Tyranians used their Mentrax Co-ordinators as often as earth people read books or pick up telephones or watch television, but to Harry they remained a source of immense enjoyment.

He could stand there with his eyes open and yet what he saw was not what was in front of him. The images he received were clear, warm and three dimensional, and while he had the impression of actually being present at the events he was witnessing he could not take part, as the action was the result of the Mentrax Co-ordinator's stimulation of his brain waves. While he could watch a whole year's history in a minute, his physical powers did not alter.

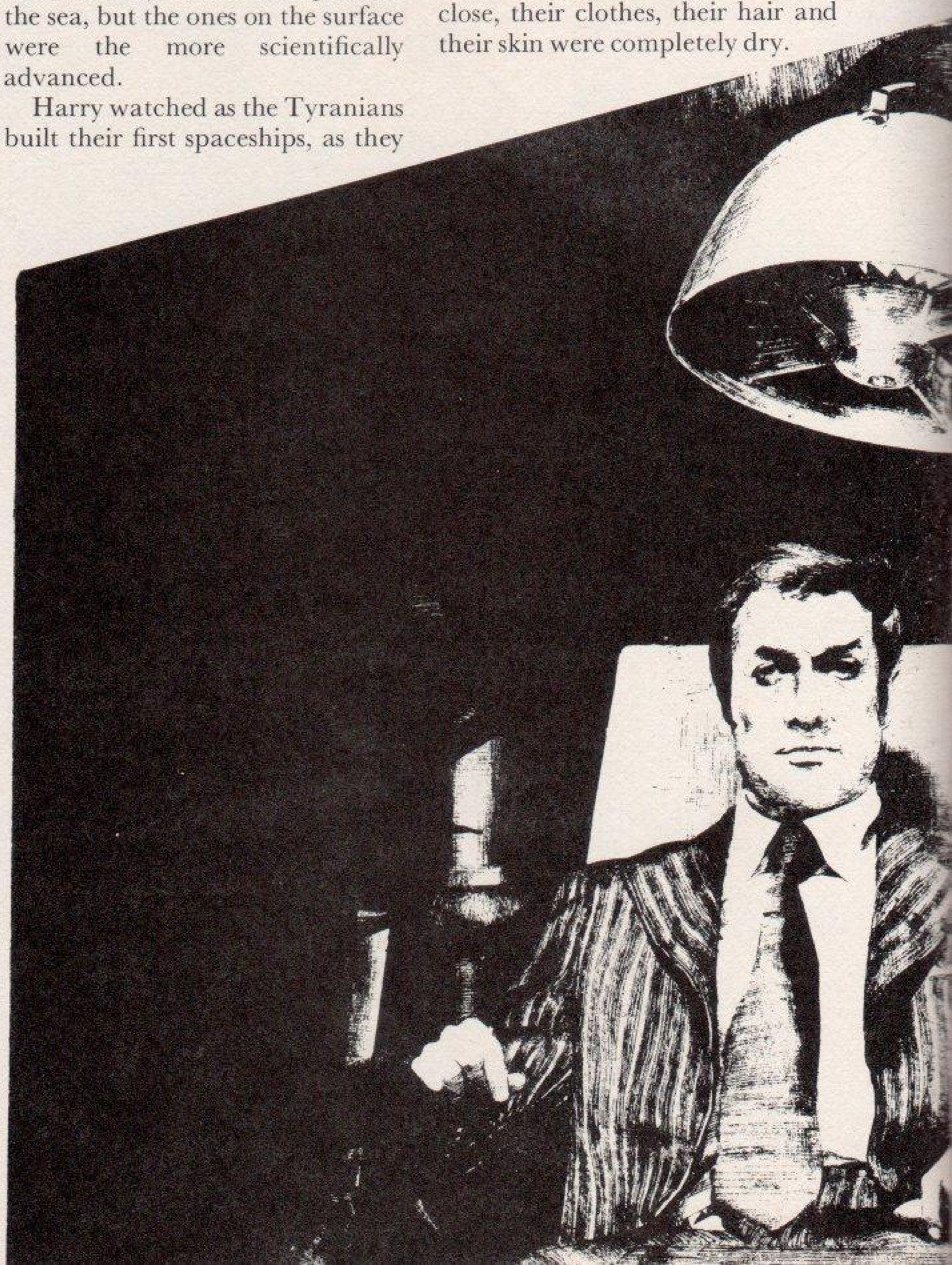
Fascinated by what he was seeing, Harry watched as the machine taught him about the birth of civilisation on Tyrano. He saw how the Tyranians had come out of the sea equipped with simple tools and had built a thriving community on the surface. There were still Tyranians living under the sea, but the ones on the surface were the more scientifically advanced.

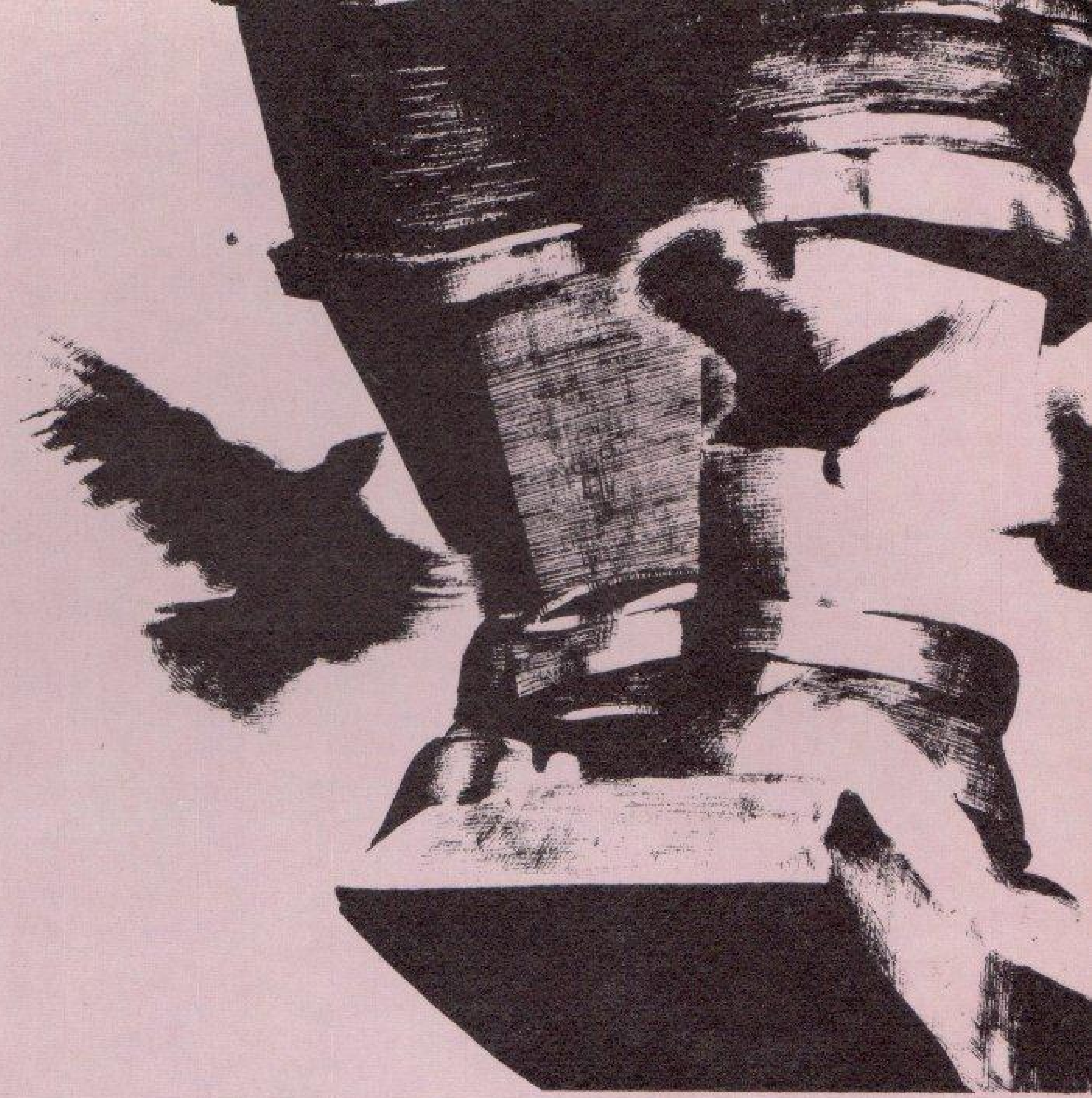
Harry watched as the Tyranians built their first spaceships, as they explored their own solar system, as they came into their first contact with life on another planet when they met the shambling, simple giants of Bremtoss. Then the picture faded and Harry saw the Doctor standing in front of him with the control box in his hand.

"Come on, it's the last dance."

Harry and the Doctor danced with a beautiful Tyranian girl, linking their arms with her fins and hopping gently up and down in a circle. Sarah was in the next group, laughing with two Tyranian men.

The drizzle on the dance floor was absorbed into the Tyranians' skin almost immediately, but it just seemed to roll off the three humans, in much the same manner as water rolls off a duck's back. As the happy evening came to a close, their clothes, their hair and their skin were completely dry.





It's said that if you put a family of monkeys in front of a set of typewriters, the sooner or – most probably – later, one of them is going to type the complete works of Shakespeare. When, thousands of millions of years before, Tamrik had perished in the earthquake on landing on Tyrano, his last thoughts were of his foolishness in not activating his robot before stepping onto the planet's surface.

As the surface of Tyrano had gradually cooled, as the atmosphere had thinned and moss had begun to form on the damp rocks near the sea, the robot had stayed there, perfectly still.

As silt and sand had covered his legs he had not moved. As trees had grown and small animals scampered round his plasti-metal waist, he had stood there silently, waiting for the radio signal that would set him off on his mission.

But the signal had to come. It had not come when the first Tyranians crawled out of the sea. It had not come when a terrifying war on his home planet Bremtoss, far, far away in another solar system, reduced the inhabitants to mindless parodies of the creatures they had once been. It had not come when ice, snow, sleet, floods and thick black mud conspired to cover all but the uppermost part of the aerial on his head. And when thick green foliage had sprouted high up out of that mud it seemed as if the message would never arrive.

But, like the monkeys and the typewriters, the message did come. From all the humming and whining of radio beams trapped inside the Tyranian atmosphere, there was one series of impulses, a tiny fragment of the vast mosaic of lost transmissions, that finally hit home on his antennae.

And then the mud of the earth cracked, the trees fell away and the eighty-foot robot rose from the slime and lumbered slowly off on his mission.

The following day Harry was urging the Doctor to try the Mentrax Co-ordinator. Sarah had already tried the Senso massage and, blushing slightly, declared it one of the most exhilarating experiences she had ever had.

"I've already tried them," said the Doctor, "on Mentrax itself. Oh, they're excellent for education and as a historical record but, like several other races, I find that too much of them dulls my appetite for living, takes the edge off my desire to *know*. Of course you might find – "

He stopped in mid-sentence as their Tyranian host came rushing in.

"It's terrible!" he said, his lips upturned in that permanent smile. "I've just had word from Deputos – the Defence building is under attack!"

"What!?"

"A giant robot has forced his way in and is tearing up the place. Come on! We need your help!"

They flew over to the Defence building in a heli-boat and two guards let them through the barrier. They saw the huge robot, apparently unaware of the commotion he was causing, tearing up the long strips of Albituminum from which the Tyranians launch their defensive Rama Beams.

Deputos himself came up and greeted them.

"Our Rama Beams are useless against him. We need explosives or a sonic lance."

The Doctor shook his head. "Explosives would be useless, and a sonic lance would take days to penetrate the body. If I'm right that robot is made of plasti-metal alloy that disperses much of the sonic beams' power."

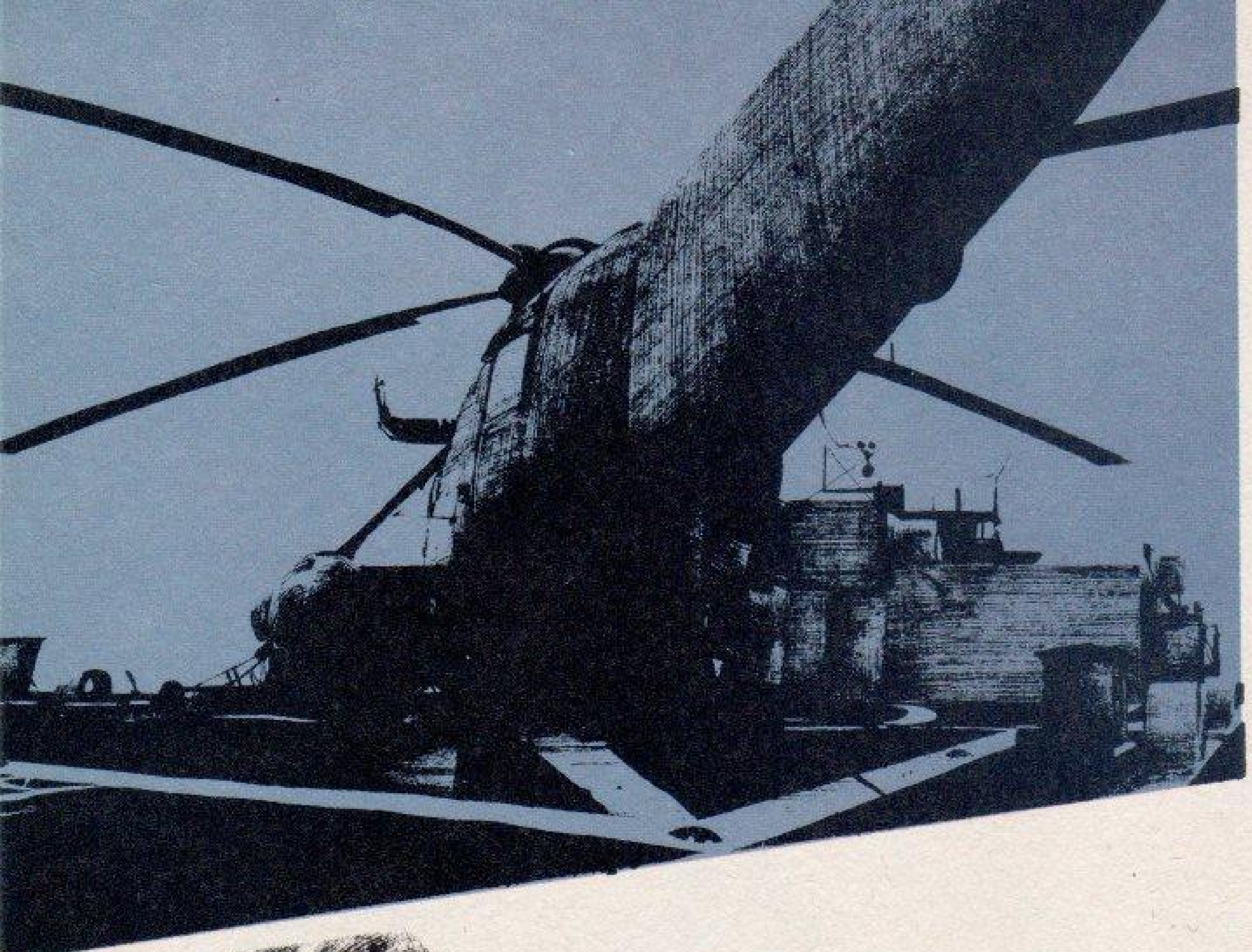
"Another planet must have heard of our new power discovery and sent this robot to steal our secret before we can develop it properly." Offered their host.

"Of course!" agreed Deputos.

But the Doctor looked uncertain. The robot was working slowly, fashioning the Albituminum strips into precise shapes. All the efforts of the Tyranian guards to hinder him made absolutely no impression.

"Where did it come from?"

"We don't know. He was first seen coming out of a swamp near the Ronda mountain."



The Doctor walked across to the heli-boat. "Can you take us there?"

"Of course."

Soon they were standing at the foot of Ronda mountain, looking at the huge hole in the ground that was gradually filling up with watery mud.

"Looks like he'd been here quite a while," said Harry.

"Or he landed very heavily."

The Doctor looked up at the mountain. It was perfectly symmetrical – completely round, with gently sloping sides and a flat top. Large green bushes grew all over it, and in one triangular area there was a forest of large Dentry trees. All around the mountain was flat swampland.

"How long would it take to get diggers here?"

"Vaccuo-diggers would have to be lifted from Alkrania and that will take time."

The Doctor studied the heli-boat.

"These travel underwater, don't they?"

"And through all but the thickest mud."

"Good. Well, let's fly up to that patch of Dentry trees and see if she can manage the soil there."

The four of them flew to the triangular patch of Dentry trees and Deputos put the heli-boat to work. It burrowed smoothly and efficiently into the loosely packed soil. They went deeper and deeper. Twenty feet, thirty, fifty, seventy – the machine was beginning to falter under the strain.

"I don't think we can go much further, Doctor."

"Just a little more."

Even as he spoke the heli-boat shot out of the black soil into blazing light. They looked around in wonder as they found themselves flying through one chamber of a massive spaceship.

Like a bird trapped in a room, the heli-boat flew clumsily round the deserted cabin. The place was empty, but it was obvious that whoever had been there had expected to come back. There was a tray full of massive pills near the control panel and a huge screen showed maps of the surrounding galaxies. A flight path had been drawn on a map covered with strange symbols.

When Deputos got his bearings, Doctor Who ordered him to fly the heli-boat into a round red button on the wall.

Deputos did so and the picture on the screen changed. This time it was filled with tiny letters and inscriptions. Deputos flew back so they could take it all in.

"What language is that?" asked Sarah, as they hovered in front of the strange writing.

"I don't know, but if I'm not mistaken that bit in the middle is the basic formula for combating celestial friction."

"Then if you crack the code you can find a way of stopping the robot."

"Perhaps – if I can crack it before the robot does what it is supposed to do."

The Doctor worked furiously, occasionally asking Harry about the codes he had learnt in the Navy. Deputos pressed the button again and again with the heli-boat, and each time the screen showed something different. At last the Doctor put down his pencil.

"It's a very complicated system of numerological hieroglyphics. But I think I can get the meaning of most of it."

Deputos flew the heli-boat into the button repeatedly until the Doctor held up his hand.

"This is the one we want," he said. "It tells us what the robot's meant to do."

The others waited quietly as Deputos flew the heli-boat back and forth along the huge lines of signs and symbols. The Doctor's face became grim.

"Good heavens!" he said, half to himself. "It seems they came from a planet in the next solar system thousands of millions of years ago. They had calculated rightly as it happens – that this planet had everything they needed to support them, but they could not wait for it to cool down and become habitable. They designed a robot to build a giant motor from the elements they knew were here."

"A motor? What for?"

"To propel this planet to a more hospitable part of the Solar System. That would have speeded up the development of the planet then, but now it means that, if the robot succeeds, everyone living here will be frozen to death!"

"How do we stop the robot?"

"I don't know yet, but these fellows from Bremtoss – "

"Bremtoss!" gasped Deputos. "But we've been there. The inhabitants are in the equivalent of our Myzonic age!"

"Now, yes. But before there was life on this planet they were capable of building a robot that shrugs off your most powerful weapons. Let's just hope they left instructions on how to de-activate it."

"And if they didn't?"

"It took millions of years before a chance sound set it going. You can guess what the odds are of it being accidentally de-activated before it has finished its task."

The heli-boat worked the button time after time, but none of the writings contained what they wanted to know. The Doctor asked Deputos to fly the heli-boat across to another panel in the ship. They swooped low over thousands of switches and dials, with only the Doctor knowing what they were looking for.

Sarah felt helpless, frustrated, like a blind woman in a plane that is fast running out of fuel and must find somewhere to land.

"That's it!"

The Doctor pointed to four green buttons at the bottom of a panel of switches. They flew lower and saw that above each button there was Bremtonian writing. The Doctor studied each button carefully.

"That one first."

Deputos put the heli-boat down on the third button from the right. An area of the screen above them lit up.

"Now that one." The Doctor indicated the first button. Another section of the screen lit up.

"And that one." The jigsaw was nearly complete.

After they had punched the last button they flew the ship back to the black soil that blocked the triangular doorway. After a difficult start the heli-boat found the going easier and easier, until at last they were outside in the sunlight.

Back at the Defence building the robot stood motionless before his half-finished machine. The Doctor studied it.

"Fantastic detail," he said, marvelling at how the robot's giant hands could have fashioned such delicate machinery. "And, do you know, I think it would have worked."

"Aren't we going to study the new form of Tyranian energy?" asked Sarah.

"Of course, of course, but there's no rush. We've got time. We've got all the time in the universe."

And with a quiet chuckle he began examining the plasti-metal surface of the robot's feet.

answers

PUZZLING PLANETS

1. Mercury, 2. Mars, 3. Neptune, 4. Mars, 5. Saturn, 6. Earth, 7. Venus, 8. Jupiter.

MOONSTRUCK

1. New, full, crescent or decrescent, half and gibbous. 2. Madagascar. 3. Highwaymen. 4. A period of 19 years, at the expiration of which the moon's phases repeat themselves on the same days as they did 19 years previously. 5. H. G. Wells. 6. Shakespeare. 7. Garlic. 8. Feldspar. 9. Honesty. 10. Mars and Neptune, two each; Uranus, five; Jupiter 12.

A GALAXY OF STARS

1. The plough and Charles's Wain. 2. Stars forming positions for good or evil. 3. The hair of Berenice, wife of Ptolomy III who sacrificed her hair to the gods as a thanksgiving for her husband's victory. 4. The North or Pole star. 5. Two stars which revolve around each other. 6. Taurus. 7. Meteors. 8. A star of a stated number of points. 9. Nebula. 10. The Great and Little Bear.

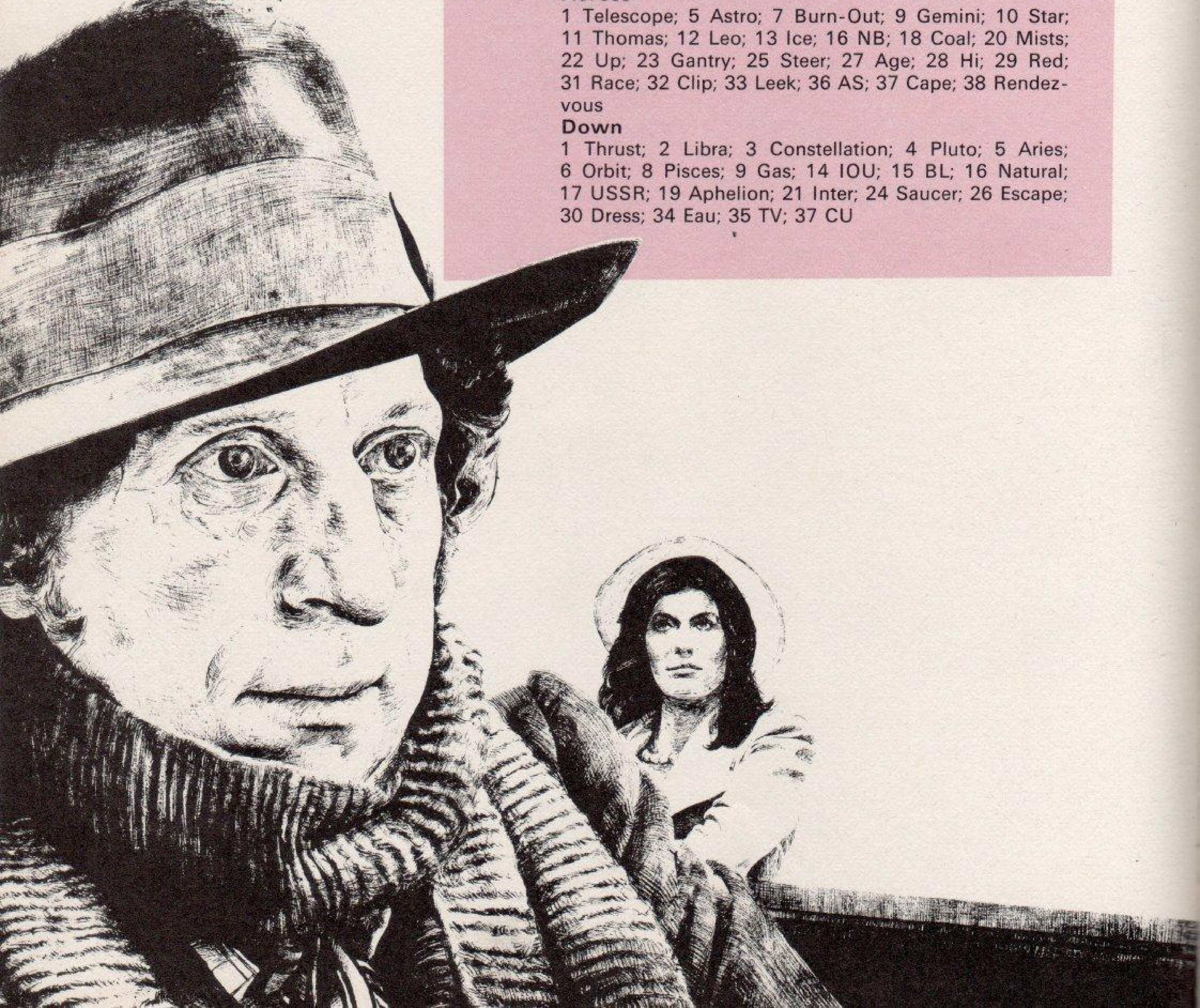
SPACEWORD

Across

1 Telescope; 5 Astro; 7 Burn-Out; 9 Gemini; 10 Star; 11 Thomas; 12 Leo; 13 Ice; 16 NB; 18 Coal; 20 Mists; 22 Up; 23 Gantry; 25 Steer; 27 Age; 28 Hi; 29 Red; 31 Race; 32 Clip; 33 Leek; 36 AS; 37 Cape; 38 Rendezvous

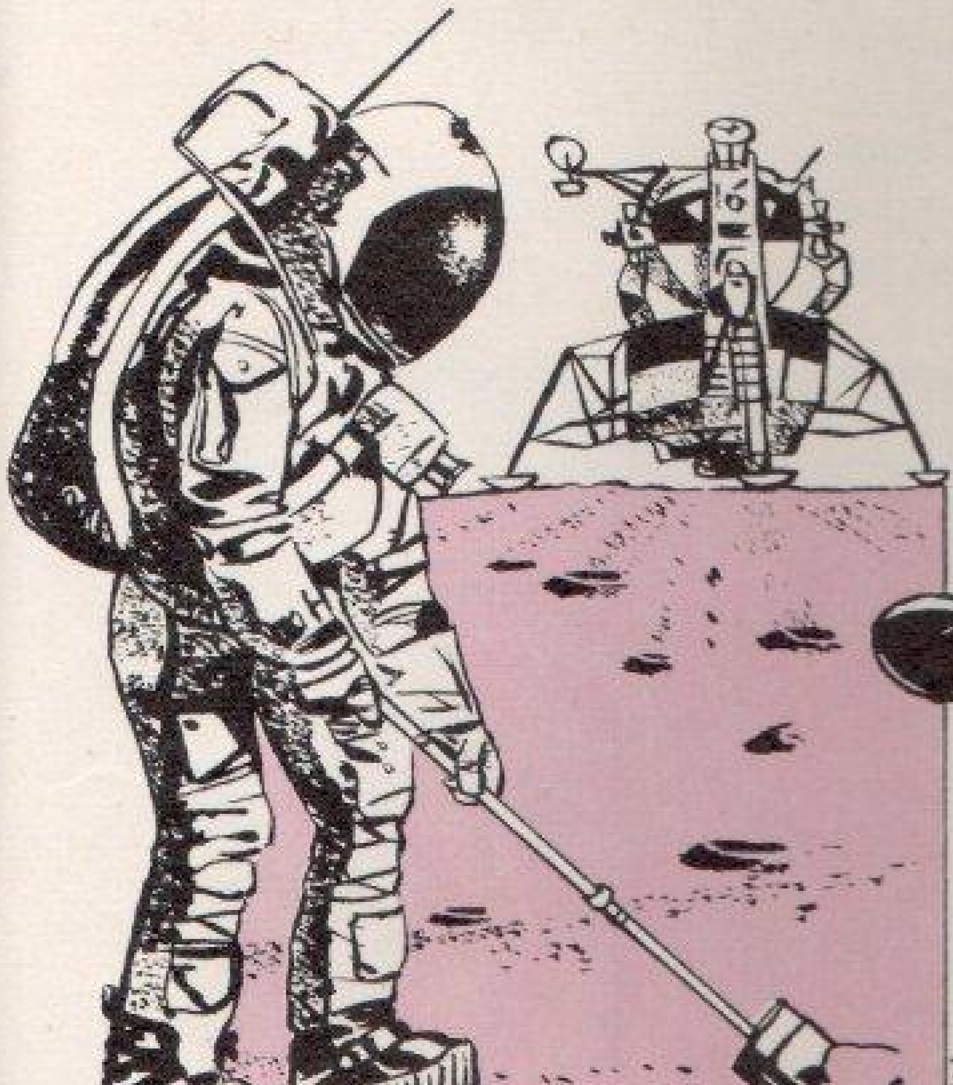
Down

1 Thrust; 2 Libra; 3 Constellation; 4 Pluto; 5 Aries; 6 Orbit; 8 Pisces; 9 Gas; 14 IOU; 15 BL; 16 Natural; 17 USSR; 19 Aphelion; 21 Inter; 24 Saucer; 26 Escape; 30 Dress; 34 Eau; 35 TV; 37 CU



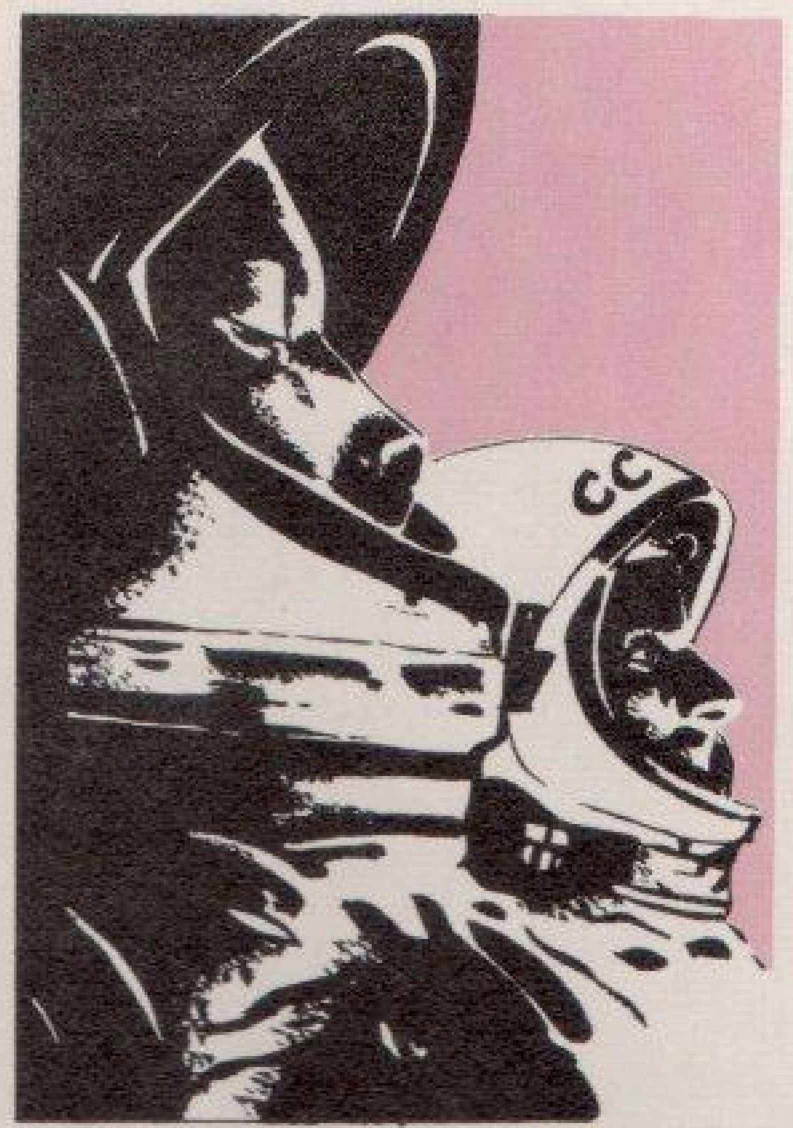
ABC of SPACE

Unless you're an expert—like a certain Doctor!—you must sometimes feel a little baffled by all the big words and strange names bandied about in relation to the Space Age. Here, then, we've compiled for you a dictionary/who's who, to try to help you sort things out—right through from A to Z.

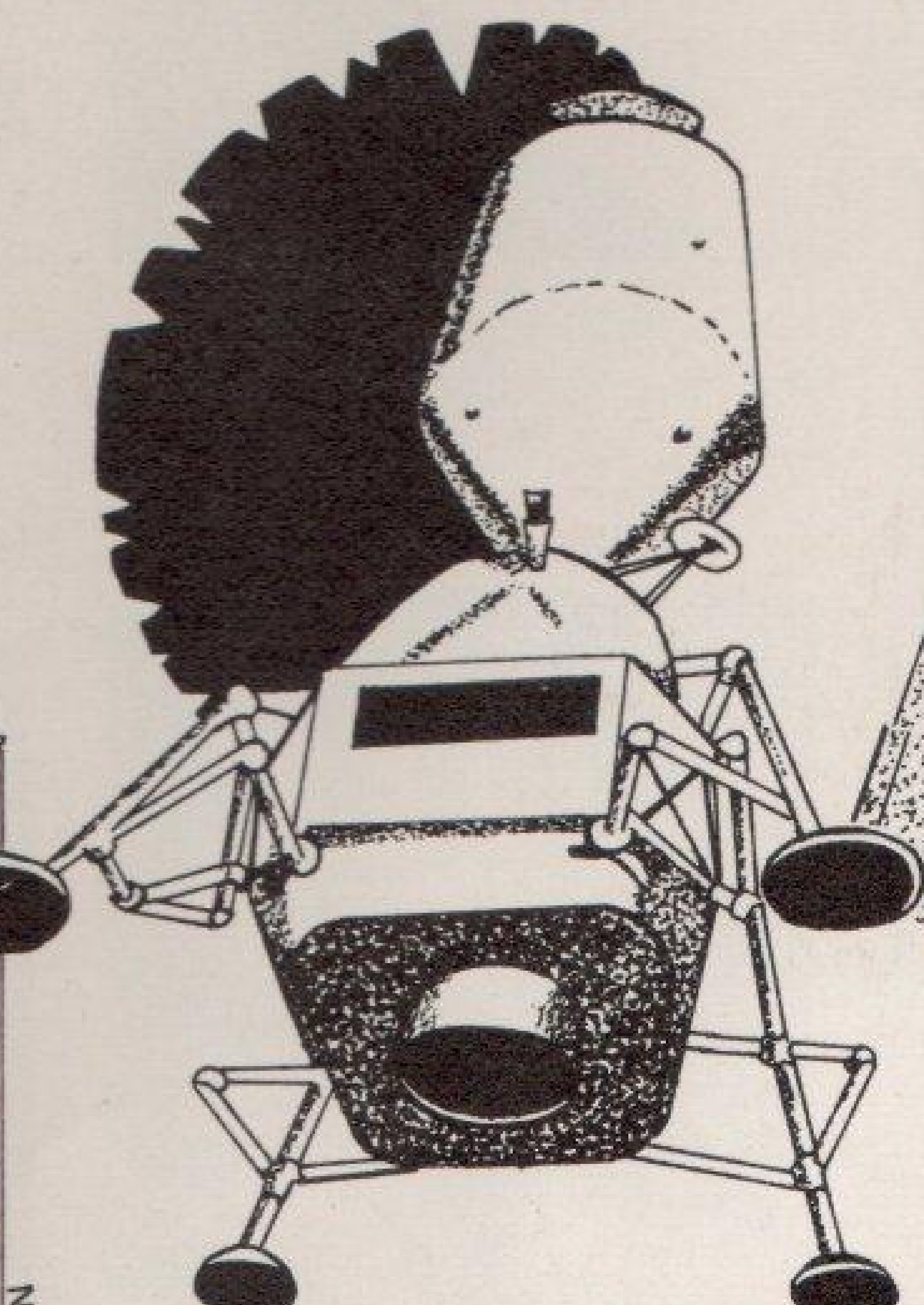


A is for **Apollo, Armstrong** and **Aldrin**. Apollo 11 was the craft from which Neil A. Armstrong became the first man to step onto the Moon on the Monday morning of July 21st 1969. Edwin E. Aldrin was the other member of this history-making expedition.

B is for **Burn-Out,** which is a term given to the time in the flight of a rocket when its propellant is used up.



C is for **Cosmonaut,** another name for a space pilot.

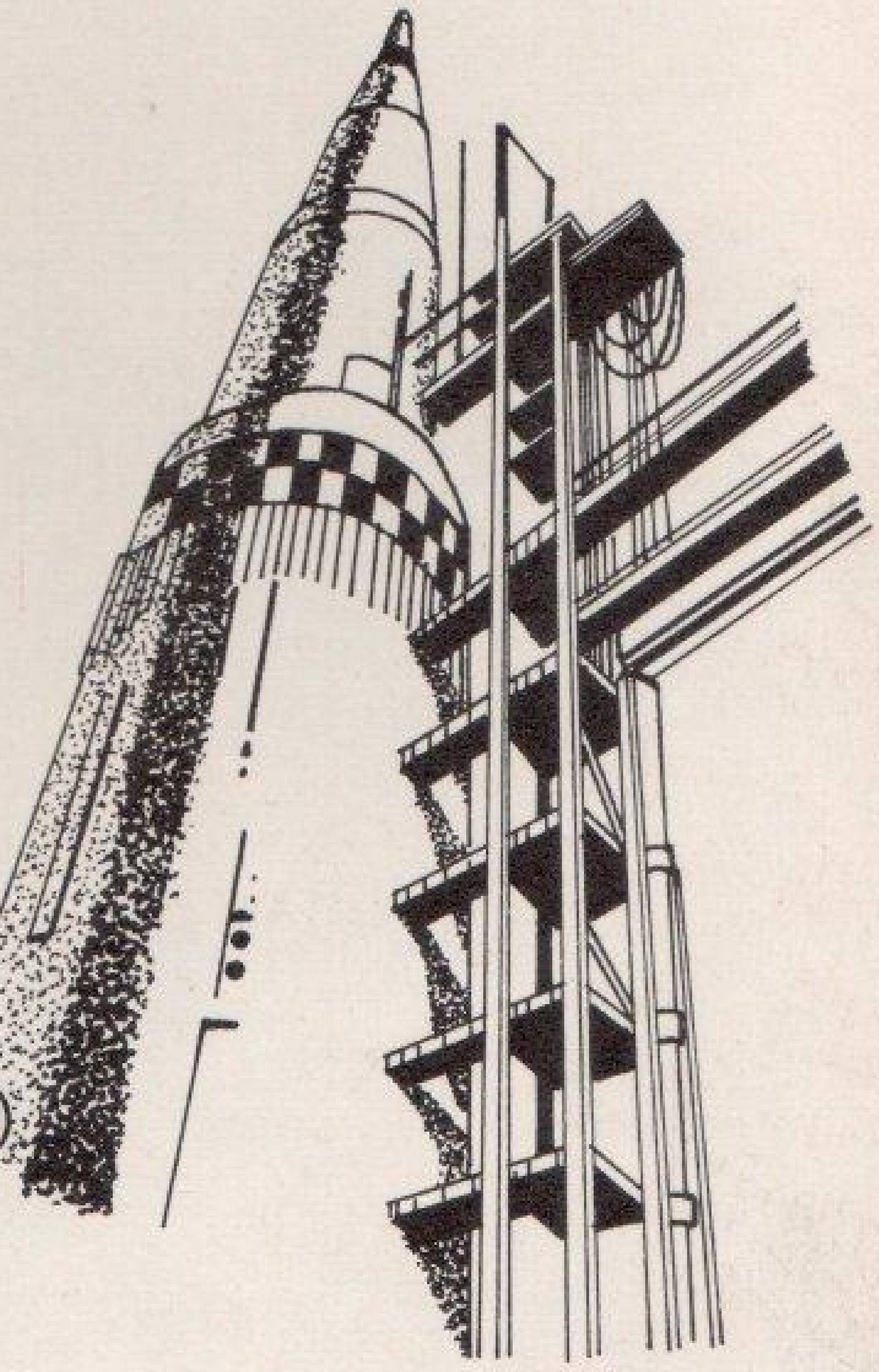


Docking is the closing and joining together of two spacecraft after they have met in space.

E is for **Eccentricity.** Nothing to do with strangeness—this is the variation of a satellite's orbit from a perfect circle.

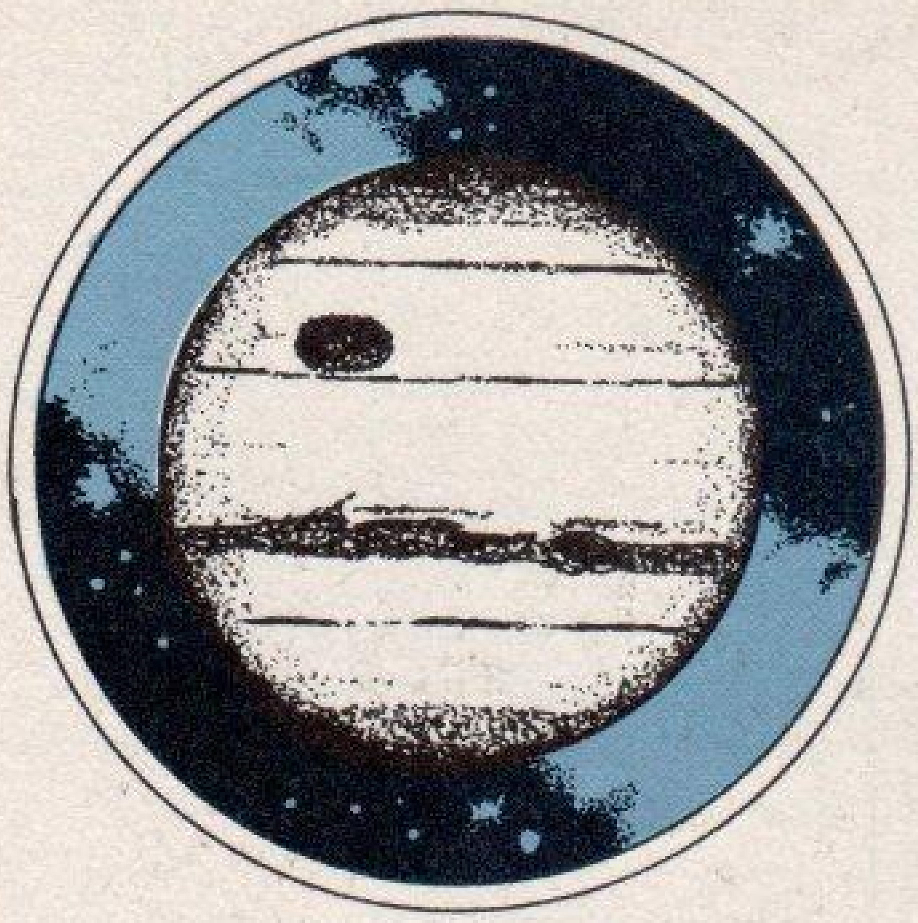
F is for **From the Earth to the Moon,** written by Jules Verne over 100 years ago. This has become one of the most famous novels of all time, because it was the first science-fiction story to be based on sound scientific principles. Interestingly, the place chosen by Vernes in his book from which to launch his moonship was near Tampa, in the Florida peninsula—which is where the famous Cape Kennedy, formerly Cape Canaveral, spaceport is today.

G is for **Gantry,** a special crane or movable tower used to service launch vehicles.



Heat Shield is a covering on a spacecraft to protect the craft and astronaut from high temperatures encountered during re-entry.

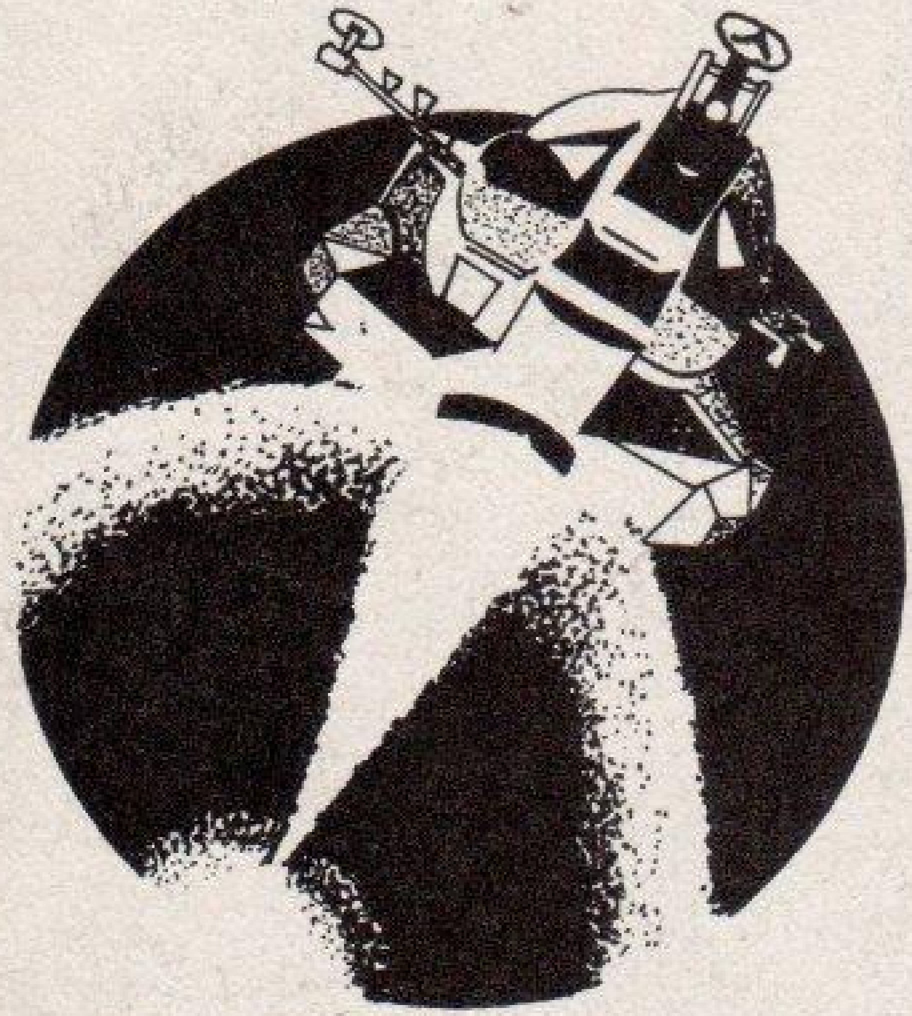
I is for **IAF**—the International Astronautical Federation. This organisation was established in 1950 to encourage space research and to promote space flight as a peaceful project. More than twenty countries are involved.



J is for **Jupiter,** the largest planet, being some 88,000 miles in diameter; 22,000 miles of this is rock or metal, 16,000 miles ice, and 6,000 miles is hydrogen, methane and ammonia, therefore making life impossible.

K is for **Kepler.** It was in the early 1600s that Johannes Kepler, a German scientist, developed the laws of planetary motion that describe the orbits of bodies in space. These laws are still used today, to determine the orbits of artificial satellites and to plan the flights of spacecraft.

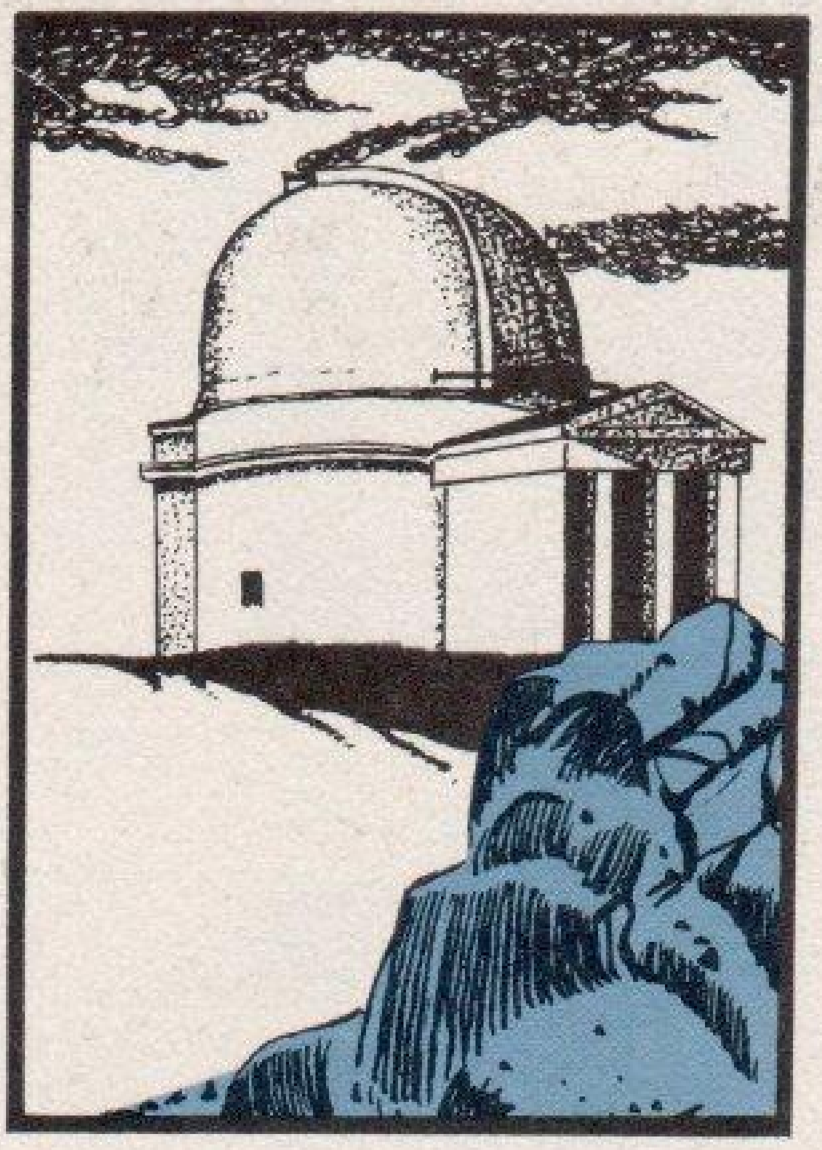
L is for **Liquid Oxygen,** the usual oxidizer for rocket engines. It is made by compressing oxygen gas under great pressure.



M is for **Module,** a single section of a spacecraft that can be disconnected and separated from other sections.

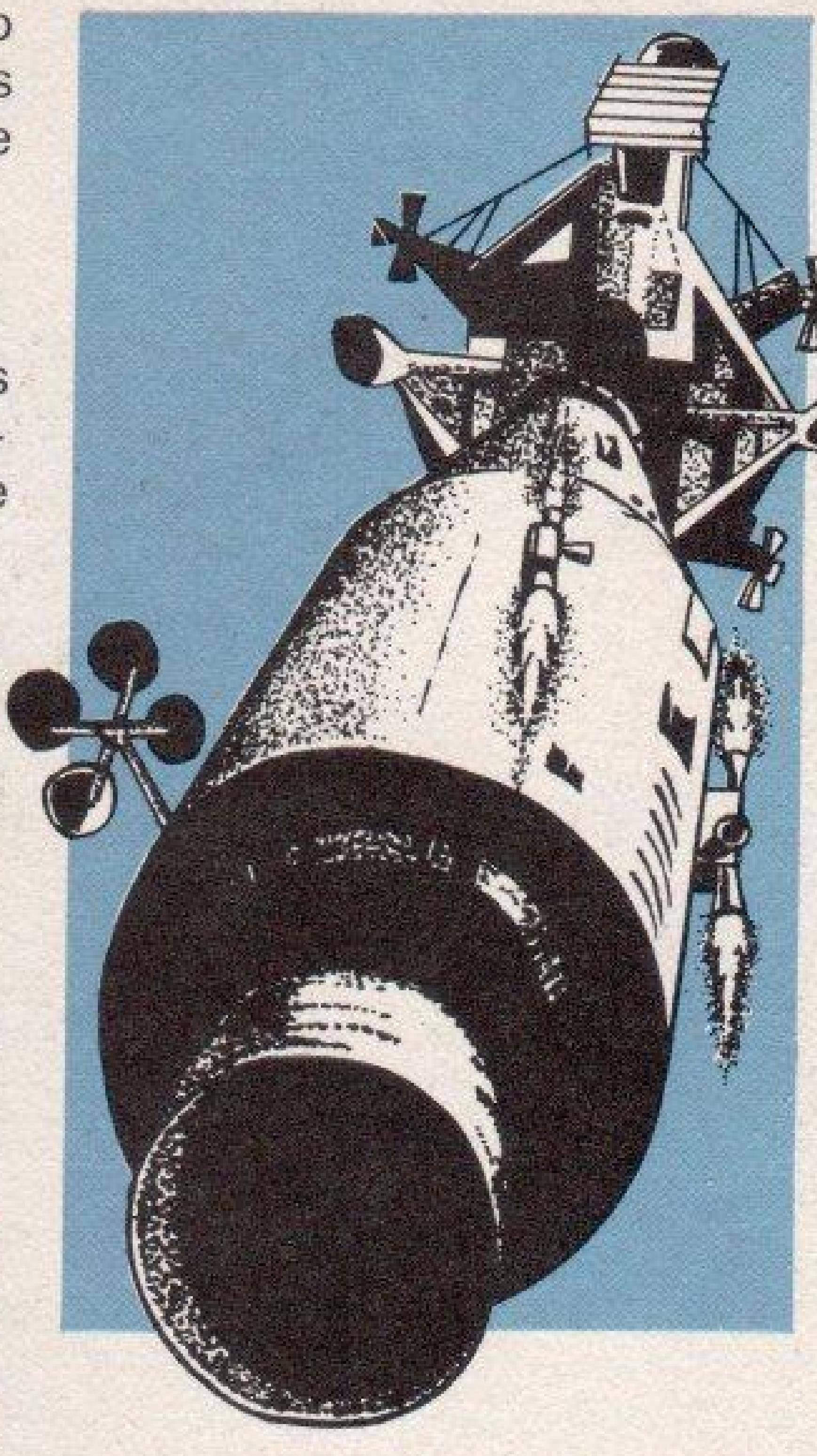
Nebula is the term used to describe hundreds of small stars grouped together which give the appearance of clouds.

O is for **Observatory,** which is a building designed and equipped for the observation of the heavens.



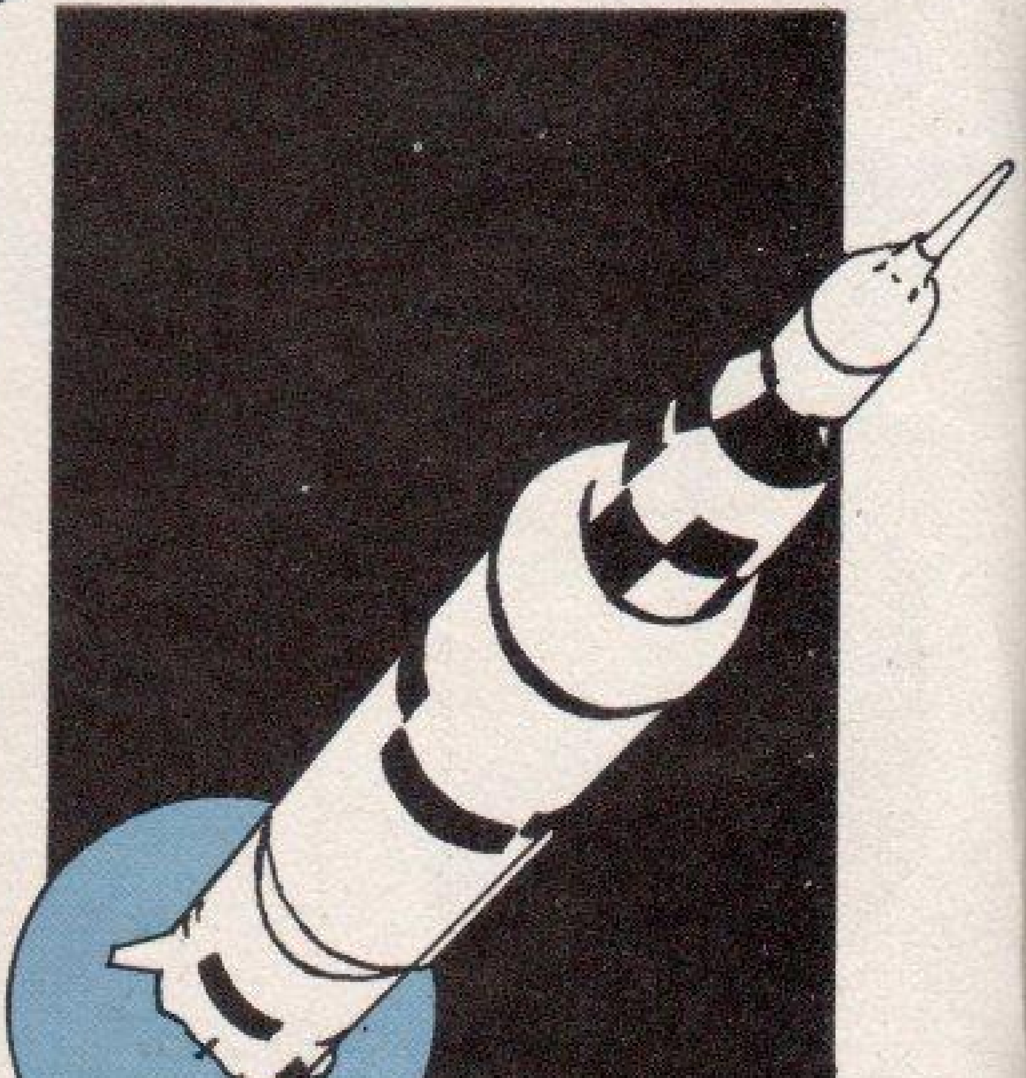
P is for **Planet,** one of the non-luminous bodies of the solar system.

Q is for **Quasar,** or **Quasi-Stellar Object.** These are the most powerful and distant sources of radio waves and light known, but where their energy comes from, astronomers are by no means certain. They exist still as one of the Great Mysteries of Space.

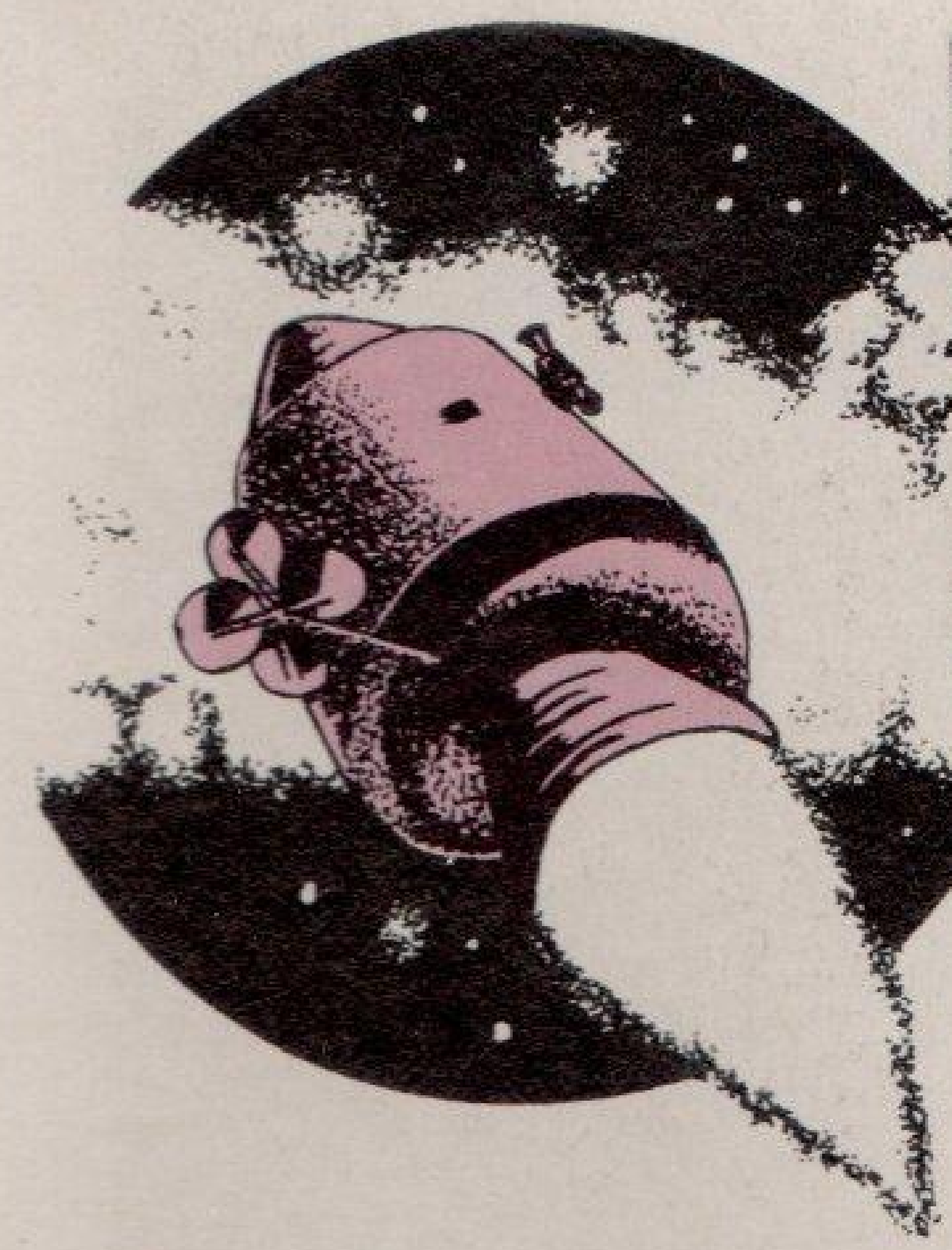


Retrorocket is a rocket which fires in the direction a spacecraft is moving, in order to slow it down.

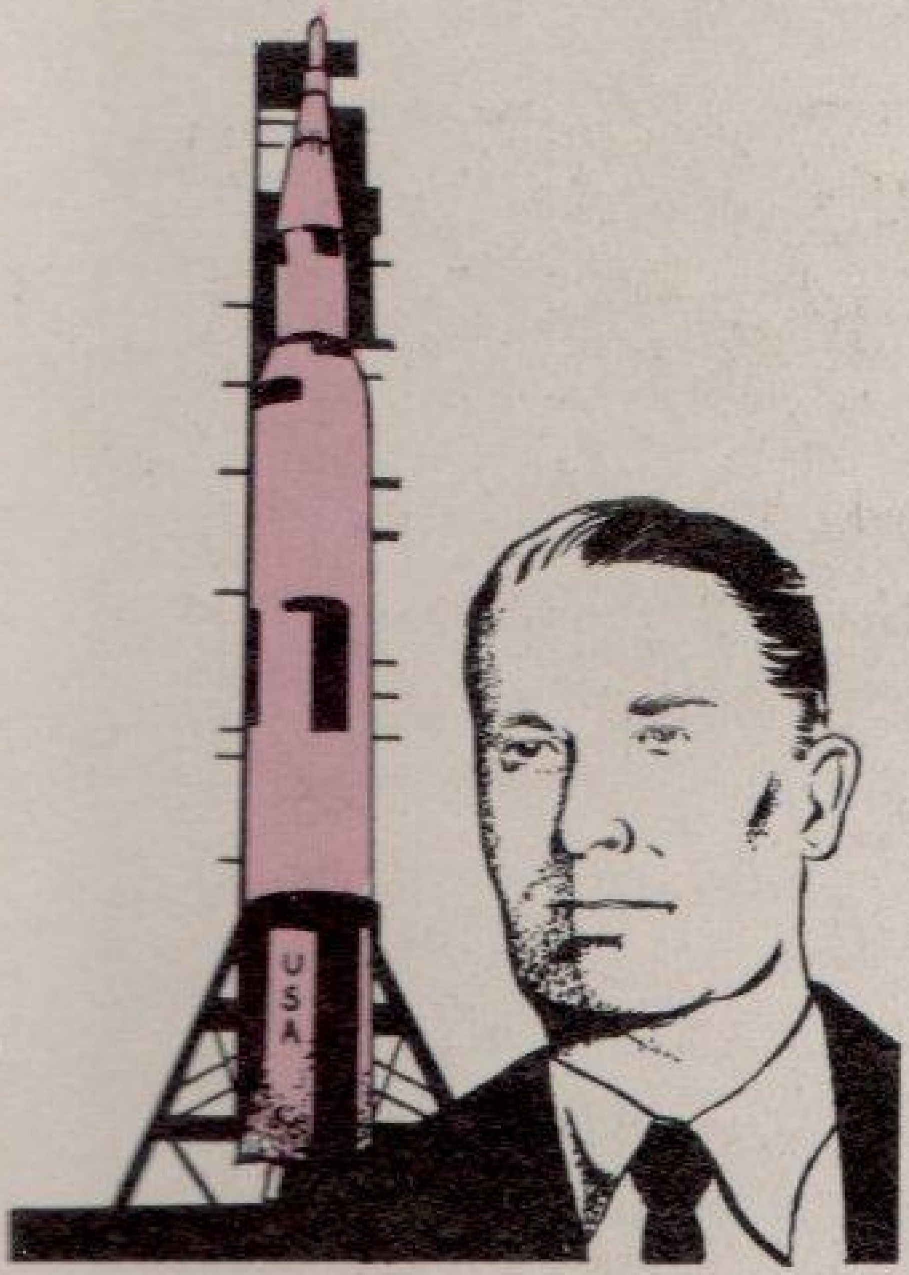
Stage is one of two or more rockets combined to form a launch vehicle.



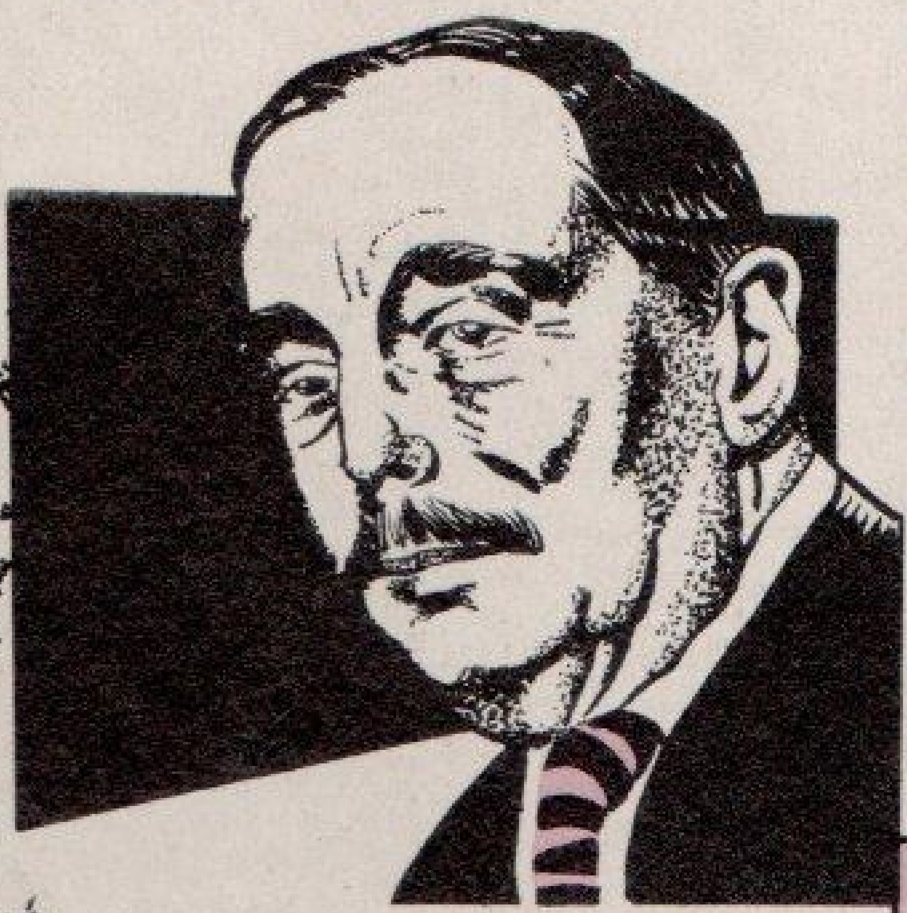
T is for **Thrust**, which is the push given to a rocket by its engine.



U is for **Uranus**, the only planet which lies almost flat on its axis. It is a comparatively new find, being discovered in 1781 by William Herschel. Others since then have been Neptune, mapped in 1846, and Pluto, in 1930.



V is for **von Braun** (Dr Wernher) who is the rocket scientist in the forefront of America's extremely successful Space activity.

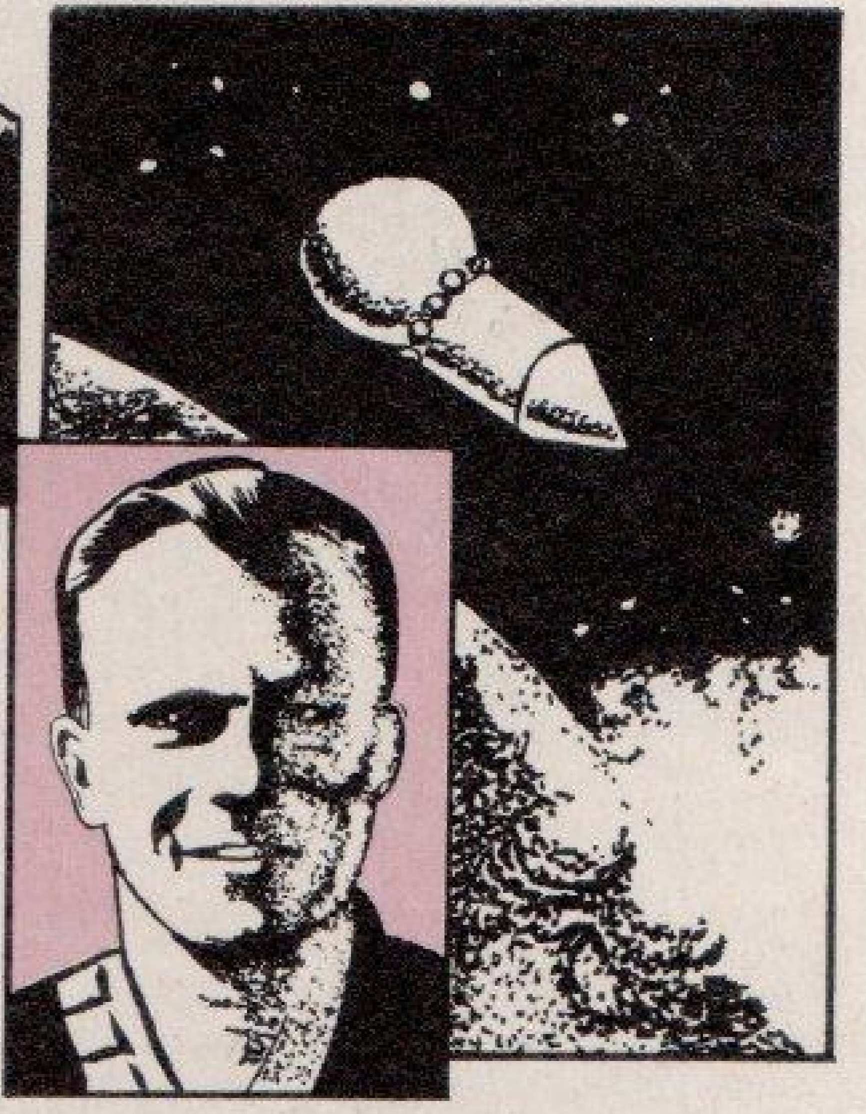


W is for **Wells**. British writer H. G. Wells followed Jules Verne in capturing the public's imagination with such stories as *The First Men in the Moon*, *The War of the Worlds* and *The Shape of Things to Come*, which in fact finishes with a young man and woman being placed in a space capsule which is fired towards the stars from an enormous cannon. Even though much of his fantasy has now become fact, his material still makes exciting reading today.

X

X was the code given to Pluto, while the planet was being sought. Following the discoveries of Uranus and Neptune, astronomers knew there must be another heavenly body, the gravitational pull of which would account for the strange orbit the former followed round the sun. So, Planet X—the letter used by mathematicians to signify an unknown quantity—was used all during the search.

Y is for **Yuri Gagarin**, the first man ever to be launched into space, on April 12th 1961 by the Russians. He was in orbit for some 89 minutes, reaching 203 miles above the Earth at his highest point. Sadly, Gagarin was killed some years after this, in an air crash.



Z is for **Ziolkowski** (Konstantin), who was another gentleman—Russian this time—far ahead of his time in thought. His manuscript, *Exploration of Cosmic Space by Rocket*, is often considered as marking the birth of astronautics as a science.